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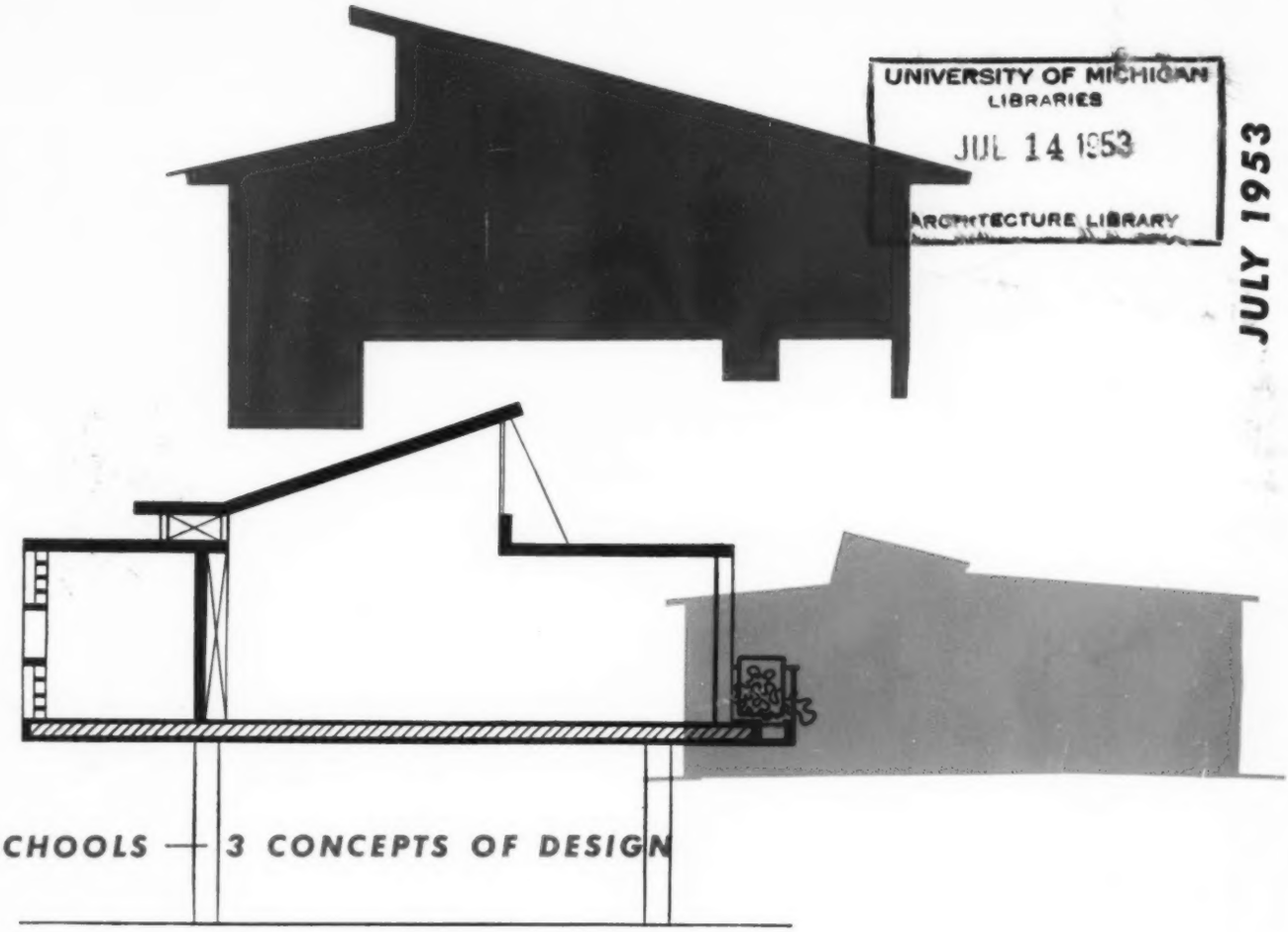
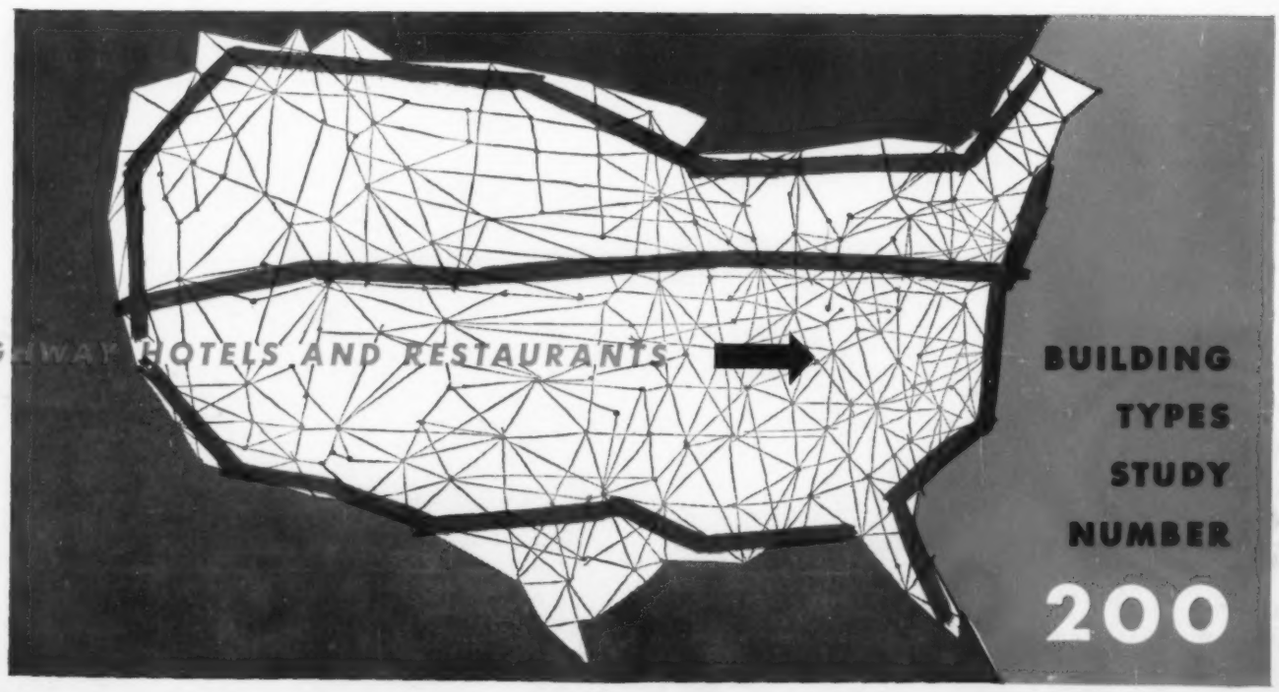


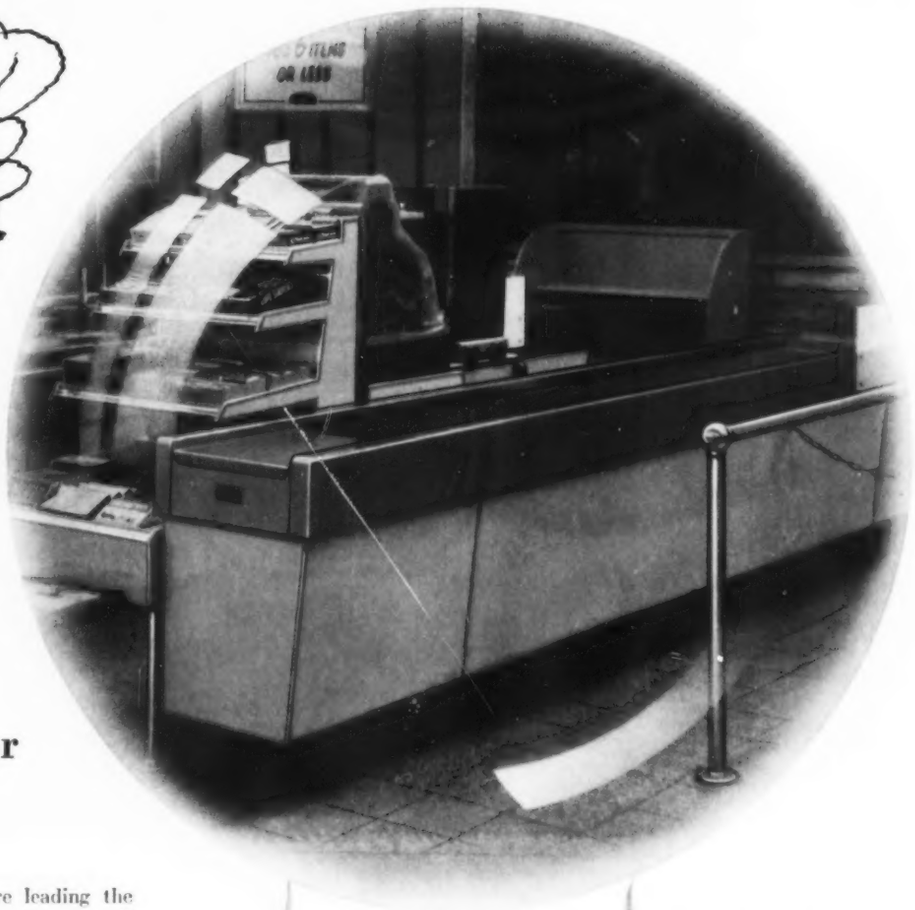
3 SCHOOLS — 3 CONCEPTS OF DESIGN

ARCHITECTURAL RECORD



IGHWAY HOTELS AND RESTAURANTS

BUILDING TYPES STUDY NUMBER 200



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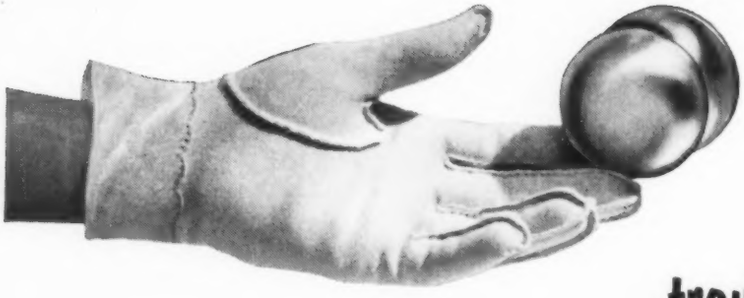

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THE RECORD REPORTS

PERSPECTIVES

Beauty and the queen: The Coronation on June 2 of Elizabeth II brought to the British throne a young woman whose views on the relationship of utility and beauty were notably expressed in a speech delivered in 1947 — at the depths of postwar "austerity" — before the Royal Society of Art and reprinted in the Coronation issue of the British journal *The Architectural Review*. Her Majesty said, in part:

"It may well be long years before we can again afford to devote such leisure and energy as did our forefathers to things purely decorative. But we should be defeatist and unimaginative indeed if we concluded that because nearly everything we produce today must be severely practical, it must also be without taste or beauty . . .

"A nation whose level of good sense in art was once reflected in the furniture of Chippendale and Hepplewhite, and in the domestic architecture of the eighteenth and early nineteenth centuries, cannot rest content with slavish imitations of foreign styles or with a simple faith in the virtue of streamlining . . .

"If we are destined to live in an austere age it is for us to establish that beauty is as essential to utility as it proverbially is to truth."

Art and politics: Her Majesty's first minister, Sir Winston Churchill, has more recently — before the 1953 annual dinner of the Royal Academy — noted two likenesses in fields in which he is a noted practitioner: "The first is the controversial differences of opinion among those who are engaged in them. . . . The second element which art and politics have in common is the search for truth. In that we have but only so far been partly successful."

Ike and art: At the same Royal Academy dinner, President Eisenhower was quoted by British Defense Minister Lord Alexander as having told him during a discussion of painting that "one must be perfectly honest with oneself, not so much to paint what one saw but what one believed and felt." The President, perhaps seeing all too clearly the similarities pointed out by Sir Winston, has so far refused all pleas for information about Dwight Eisenhower the Sunday painter; and his comments on the UN buildings and the famous Bobby Jones portrait have been to date the only clues to the Presidential attitudes on the arts.

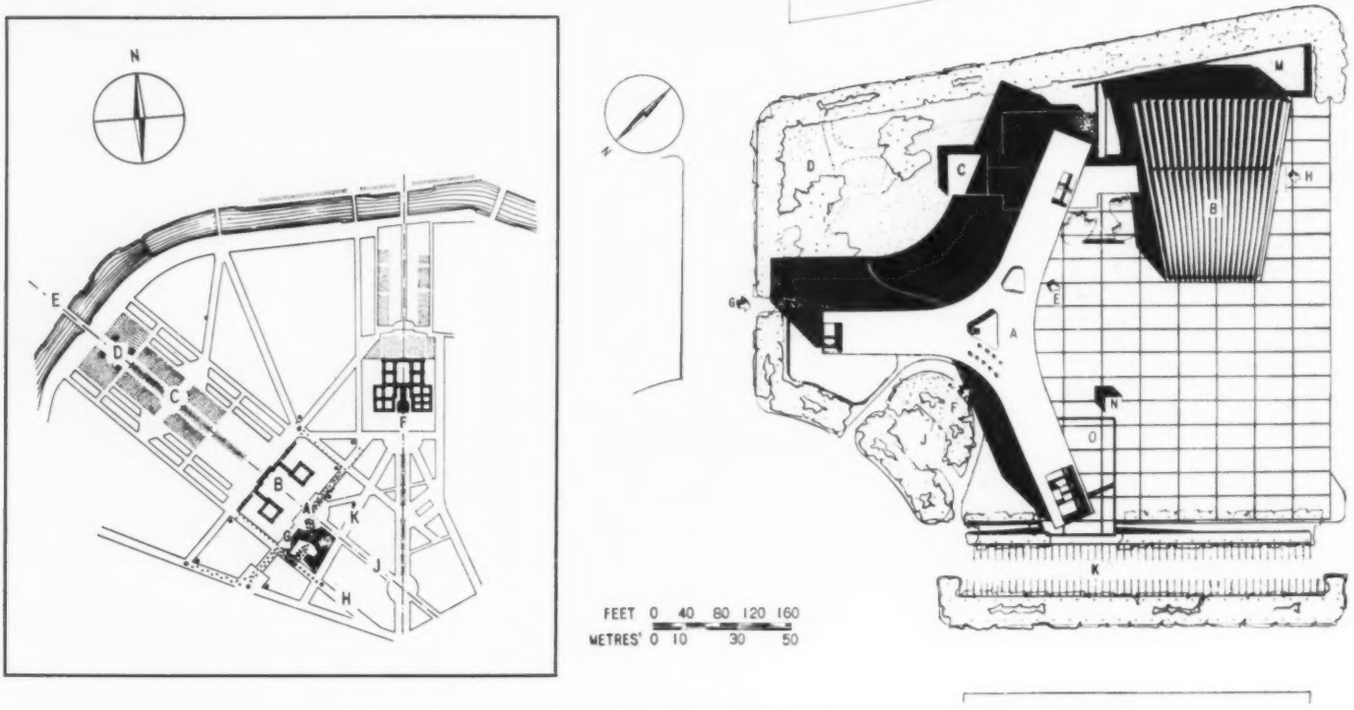
845 TV commissions? Within "a few years," according to David Sarnoff, chairman of the board of directors of the Radio Corporation of America and the National Broadcasting Company, there will be 1000 television stations in operation in the U. S. Total today: about 155.

Wonders of new york: Seven "engineering wonders" of New York City named in a recent vote of the Metropolitan Section of the American Society of Civil Engineers (in order of votes received): George Washington Bridge, Brooklyn Bridge, Empire State Building, the city subway system, the city water system, Holland Tunnel, Brooklyn-Battery Tunnel.

"Discoverer and traditionalist": Charles Edouard Jeanneret of France — Le Corbusier — has received the Royal Gold Medal for 1953 of the Royal Institute of British Architects. Le Corbusier, who has never been able to say anything which could be heard over the echoes of his early description of the house as a "machine for living," observed at the presentation ceremonies in London that he was awarded the Medal only "because I have been a cab-horse for forty years," receiving "like a true cab-horse, many blows with a whip" without altering his outlook or changing his aims: ". . . It is always the human being, Man, that I have sought to study, not as a professional architect but as a discoverer, and also as a traditionalist. I have always had my feet in the past, and my head in the past too. My roots are in the past, though not in the Dark Ages of the academies. At the same time, I have tried to take a step towards the future. It has been my object always to be simple and direct, to be both an engineer and a poet."

"Mr. wright comes to town": The title of a *Herald Tribune* editorial on the occasion of Frank Lloyd Wright's recent visit to New York to receive the 1953 Gold Medal for Architecture of the National Institute of Arts and Letters (see page 16) was a simple statement of an event which got more attention (all free) from newspapers, radio and TV than any architectural event in memory, including the 1952 A.I.A. convention and Mr. Wright's own previous visits. As he said himself, "They want me on ten programs a day and I only have time for three." Well, Mr. Wright is very wrapped up in battling the International Style ("I've lost patience with them") and does not appear to have changed his well-known views on the men generally associated with it ("they're not architects — they're all talented amateurs"). He speaks with special contempt of last winter's "Postwar Architecture" exhibit at New York's Museum of Modern Art — an exhibit in which he was represented by four buildings, more than any other single architect ("I told them to take my buildings out and they wouldn't do it"). Does Mr. Wright have any hope, then, for the organic architecture he has been preaching so long? — "Hope! — of course I do; it's all around you now; we have the idea and they can't stop it."

Architecture and public relations: Lever House drew more than 50,000 visitors for conducted tours during its first year.



New location (left above) is in southwest of Paris, very near Ecole Militaire (B). Site is bounded by Place de Fontenoy (A) and Avenue de Saxe (J), Avenue de Lowendal (G), Avenue de Suffren (H) and Avenue de Segur (K). Sketch also shows relationship to Tour Eiffel (D), Champ-de-Mars (C), Palais de Chaillot (E) and Les Invalides (F). Site plan (right above) shows Secretariat (A) with entrance at (E) and Conference Building (B) with entrance at (H); Executive Board (C), near site for expansion (D); sunken garden (M); sculpture (N), pool (O); motorists' entrance (F); parking (J) and (K); service ramp (G)

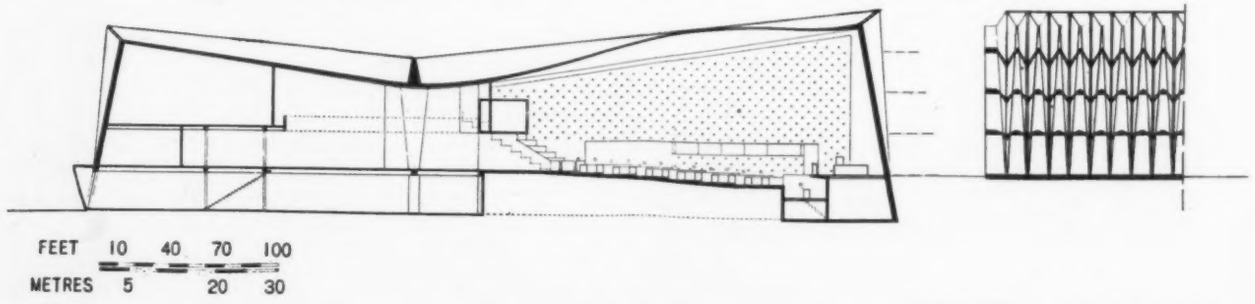
UNESCO CONSIDERS STILL ANOTHER HEADQUARTERS SCHEME

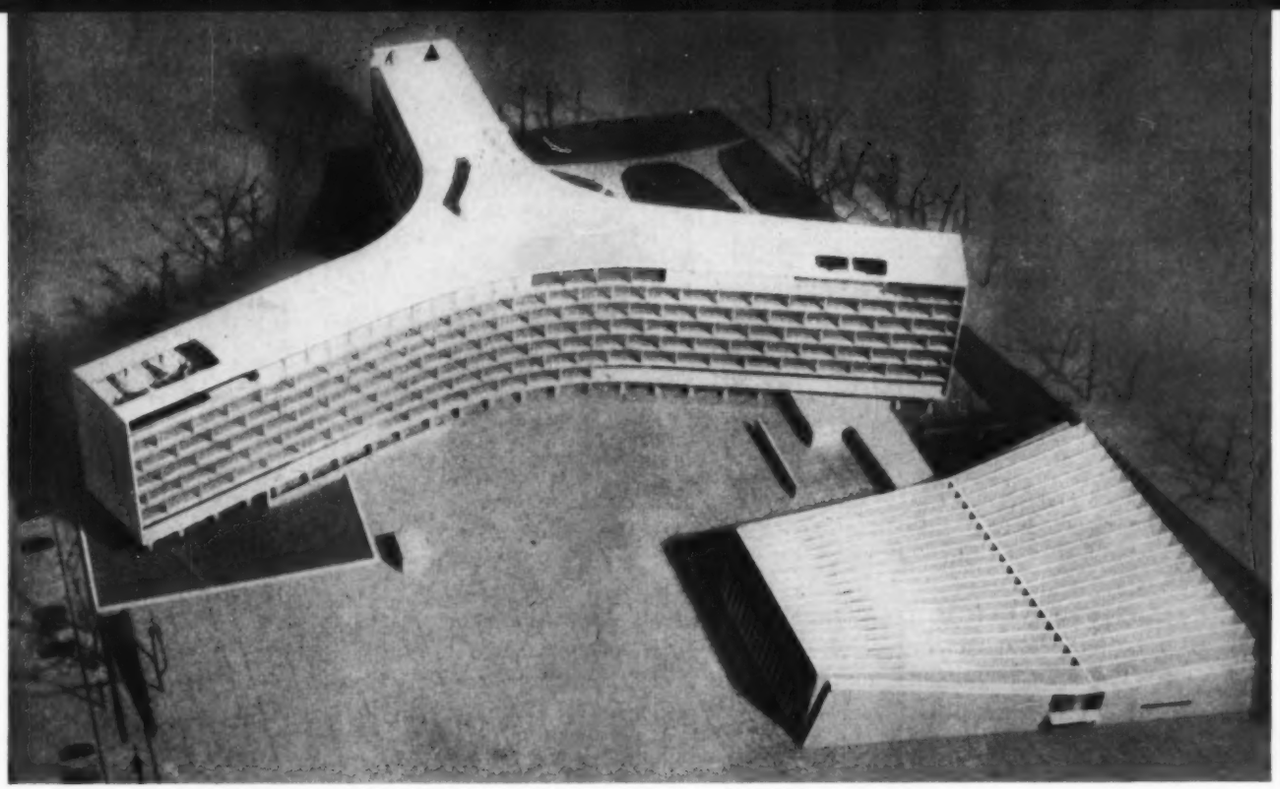
THE THIRD PROPOSAL for a Paris headquarters for the United Nations Educational, Social and Cultural Organization was to be presented to a UNESCO general conference July 1. The new scheme, planned for the same Place de Fontenoy site which was rejected as "unsuitable" after French Architect Ernest Beaudouin prepared the first headquarters plans commissioned by UNESCO, was designed by Architect Marcel Breuer of the United States, Architect Bernard Zehrfuss of France and Engineer Pier Luigi Nervi of Italy — the same trio whose 16-story scheme for a Bois de Boulogne site (ARCHITECTURAL RECORD, Dec. 1952, pages 11–14) was rejected last fall by Paris officials because it would "interfere with the view of l'Arc de Triomphe" (the designers said it would not) and looked, moreover, "like a Notre Dame built of radiators."

With the two-fold aim of "respecting the past while turning towards the future," the present scheme places the buildings on the site so they complete the "planned composition" of the Ecole Militaire area and then lets the Secretariat's widest façade, the great Piazza and the Conference Building look towards the Suffren-Grenelle district — an area expected to be subject to large-scale replanning which may develop it as a link between the cultural center of the Left Bank and the expanding districts of Passy and Auteuil. The initial reaction from Paris officials and press was enthusiastic.

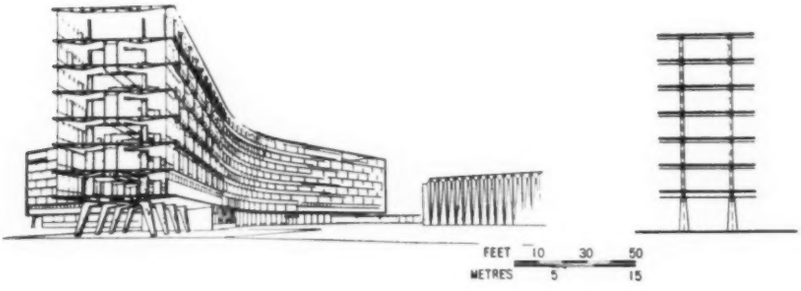
Stone mosaic of light texture and color will be used for exteriors, rubble stone masonry for retaining walls and bush hammered concrete with special aggregates for exposed parts of structure. Murals and sculpture are envisioned as part of the design. Estimated cost: $6 million.

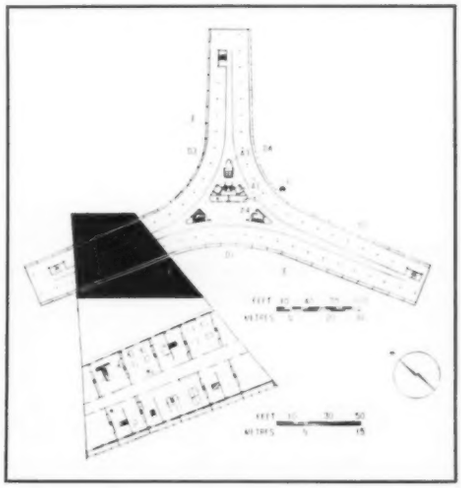
Conference Building: longitudinal section and details of end walls, which furnish part of roof support



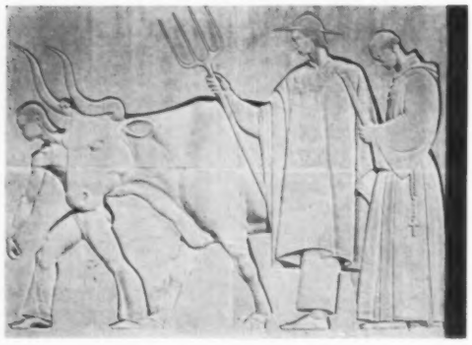


Above: photo of model. Below: cross-section of Secretariat and typical floor plan; inset shows typical furnishing. (D) indicates façades—(D1) southwest: 32-in. projecting floor, horizontal glass sun and partition slabs, solar glass, horizontal sun filters; (D2) east: 32-in. projecting floor and partition slabs; (D3) north: 24-in. projecting floor and partition slabs; (D4) southeast: 32-in. projecting floor, slabs, solar glass, vertical sun filters





Below: Conference Building—interior view of two-story plenary session hall. Exposed structural ceiling and end wall (behind stage) aid acoustics; perforated surfaces of side walls are both acoustical treatment and lighting design. "Corrugated" concrete structure of building is continuous in roof (to be copper-covered) and end walls; roof, braced by slab of varying thickness, rests on end walls and row of columns. It may be prestressed concrete



Photos by Homer Dana

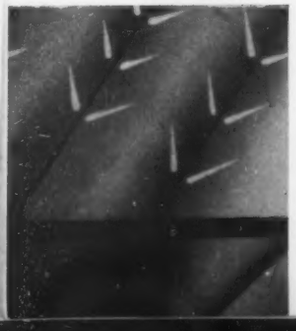
Sculptor Donal Hord works in many materials; examples shown here include Indiana limestone, diorite and jade, all carved directly. Above left: one of 6- by 8-ft panels "Legend of California" in Coronada, Calif., High School library. Center: "Guardian of Water," 23-ft fountain for San Diego Civic Center. Top right: "Thunder," 20-in. jade figure in San Diego Fine Arts Gallery. Right: "Spring Stirring," 46-in. black diorite

1953 A.I.A. AWARDS TO ALLIED ARTS

THE FINE ARTS MEDAL of the American Institute of Architects was established in 1919 and the Craftsmanship Medal in 1915 to provide a means of recognizing outstanding achievement in fields closely allied with architecture. This year's awards, scheduled for presentation at the A.I.A. national convention at Seattle last month, went to men widely known among architects.

Donal Hord, the San Diego sculptor who received the Fine Arts Medal, has works in many public buildings, including — besides those shown above — San Diego State College, Hoover, Calif., High School and Balboa Park in San Diego; these in diorite, marble and limestone. In museums and private collections are pieces in a wide range of materials — rosewood, lignum vitae, mahogany, bronze, marble, diorite, obsidian, jade, porcelain and terra cotta. His previous honors include a $1000 award from the American Academy of Arts and Letters in 1942 and the Gold Medal of Merit with $1000 from that Academy in 1948. As for his artistic philosophy, he says: "My work has been based on interpretation of my own locale. But I am at a loss to express a pertinent philosophy regarding sculpture and architecture that would sound sage, even within the boundaries of San Diego County itself. I like good craftsmanship and design, and I am skeptical of any art work that needs a literary explanation; if it requires an interpretation, it didn't come off."

The fourth stained glass artisan to receive the Craftsmanship Award, Emil Frei of St. Louis, has pioneered in the development of a contemporary expression in an art which had been largely static since the Middle Ages. His experiments with textural variety — using both clear and stained glass in some panels — and with combinations of opaque wood and prismatic glass have helped to give his field new techniques as well. Commissions at Emil Frei Inc., the group of designers and craftsmen headed by Mr. Frei, are handled as group projects under the supervision of one of the group members.



Emil Frei says the Craftsmanship Award "actually was given for the work of those who are with me" and selects this group of details (and one sample section) from larger windows to represent the group (designer's name given first, then building of installation, then architect):

(Top row) Milton Frenzel—Cenacle Retreat House, St. Louis, Maguolo & Quick, architects; Robert Harmon—SS. Peter and Paul Church, Pierre, S.D., Barry Byrnes, architect; Siegfried Reinhardt—Church of the Annunziata, Ladue, Mo., Maguolo & Quick, architects. (Bottom row) Robert Frei—Jesuit Tertianship House, Decatur, Ill. (old building, architect not known); William Schickel—a sample section; Francis Deck—St. Peter's Church, Kirkwood, Mo., Murphy & Mackey, architects

MEETINGS AND MISCELLANY

Hill-Burton Cuts Opposed

ARCHITECTS have been expressing their concern over cuts in funds for the Hill-Burton hospital program; and at least one firm was circularizing all members of the American Institute of Architects in an effort to alert them to the implications of the cuts. It was hoped the Senate might reverse the action of the House of Representatives, which slashed hospital construction funds for fiscal 1954 to $50 million, $10 million under the Administration request and $25 million under the Truman budget figure.

As it stood, there would be "very few" new projects started and going projects in at least 14 states would have to be curtailed, perhaps in some cases stopped. More than that, personnel cuts amounting to 37.5 per cent of the staff of 185 in the Hospital Facilities Division of the U. S. Public Health Service would affect the extent of technical aid to architects in the planning and design of facilities constructed under the program. It was expected that two regional offices would have to be closed entirely.

The $50 million appropriation, matched by state and local funds, would provide approximately 6250 beds—against the existing deficit of 850,000 beds, and the annual need for 30,000 beds to replace obsolete facilities and keep up with a 2,000,000 increase in population each year.

F. W. Dodge Elects

HOWARD W. BARRINGER, who entered the financial division of F. W. Dodge Corporation in 1920 and has served in recent years as vice president and treasurer, has been elected president of the corporation. Irving W. Hadsell and Chauncey L. Williams, formerly vice presidents of the corporation, have been named executive vice presidents. Thomas S. Holden, president of F. W. Dodge since 1941, has been named a vice chairman of the board of directors; he will continue the research and public relations activities which have been under his direction for many years.

Robert F. Marshall, general manager of the Dodge ARCHITECTURAL RECORD magazine and book division, has been named a vice president of the corporation, as have Julius T. Little of the Philadelphia office, in charge of the Eastern region of the Dodge Construction News Division, and Howard M. Thompson, assistant general manager of the Dodge Sweet's Catalog Service Division.

Tops in Product Literature

THIRTY BUILDING PRODUCTS manufacturers received awards in the 1953 edition of the annual Building Products Literature Competition sponsored jointly by the Producers' Council and the American Institute of Architects. The awards, announced at the Council's semi-annual meeting June 15 by Richard M. Bennett, F.A.I.A., of Chicago, chairman of the jury of five architects who judged 150 entries, were as follows:

Class I (Manuals, Handbooks, Basic Information)
Certificate of Exceptional Merit: Open Web Steel Joist Construction—Steel Joist Institute.
Certificate of Merit: Stainless Steels for Store Fronts and Building Entrances—American Iron and Steel Institute, Committee of Stainless Steel Producers; Thin Setting Bed Methods and Materials—Tile Council of America; Handbook of Concrete Construction—Universal Atlas Cement Company.
Honorable Mention: Technical Service Data, #1, #2—The Celotex Corporation; Specifications Recommended to Secure Dry Brick Walls—Louisville Cement Company, Inc.; Characteristics of Modern Woods—Roddis Plywood Corporation.

Class II (Literature Concerned with Particular Products)
Certificate of Merit: American Standard Radiator Heating Catalog R52—American Radiator and Standard Sanitary Corporation; Anemostat, Selection Manual 45—The Anemostat Corporation of America; Armstrong's Floors and Walls—Armstrong Cork Company; Crane Hospital

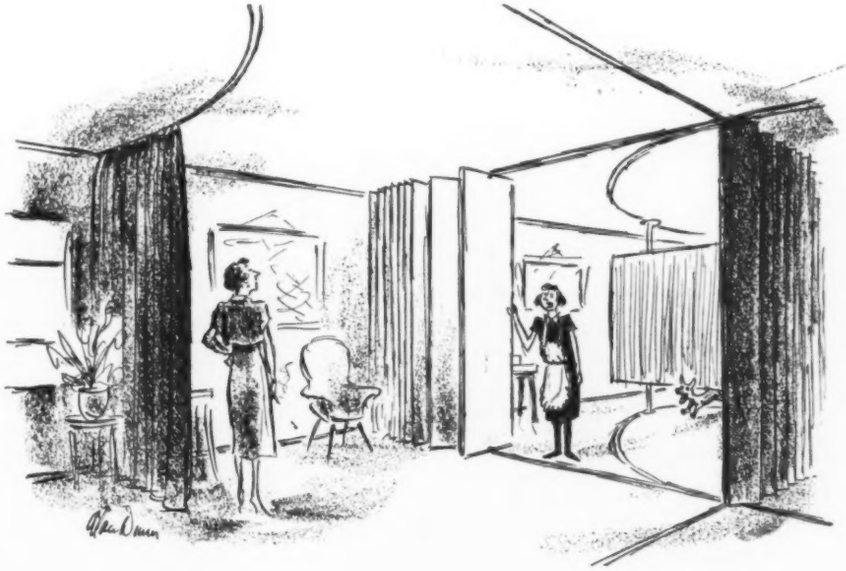
(*Continued on page 16*)

Boston Center Plans Under Way

THE "BOSTON CENTER ARCHITECTS" are hard at work and preliminary plans are expected to be ready soon for the Stevens Development Company's $75 million Boston Center to be built on the 28-acre site of the Boston and Albany Railroad yards in the Back Bay area. An agreement for the purchase of the site was signed in February by the company, which is headed by Roger L. Stevens of New York.

Architects for the project, named in May, are Pietro Belluschi, Walter Gropius and The Architects Collaborative, Walter F. Bogner, Carl Koch and Associates, Hugh Stubbins, Jr.

The project, which will be built on an area twice the size of the area of New York's Rockefeller Center, is expected to include more than a million sq ft of office space and 850,000 sq ft of store space. It is also expected that a hotel of 750 rooms and a convention hall will be built in conjunction with the project.



—Drawn for the RECORD by Alan Dunn
"Good morning, ma'am—where do you want the walls today?"

(*Continued from page 15*)

Service—Crane Company; Josam Catalog K—Josam Manufacturing Company; Zero Weatherstripping Catalog 53—The Zero Weatherstripping Company, Inc.

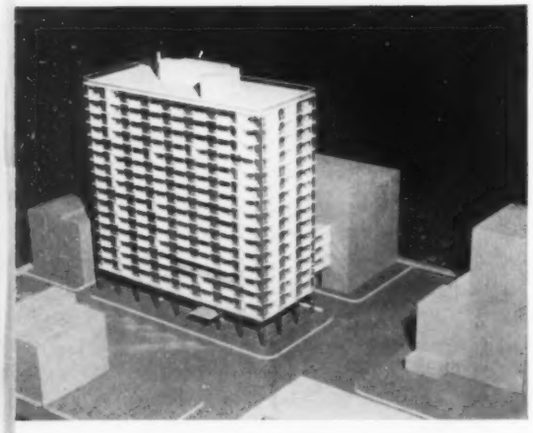
Honorable Mention: Acme Sliding Door Hardware—Acme Appliance Manufacturing Company; Aluminum in Architecture—Aluminum Company of America; Andersen Detail Catalog No. 531—Andersen Corporation; Hauserman Data Manual 53—The E. F. Hauserman Company; L.O.F. Glass for Construction—Libbey-Owens-Ford Glass Company; Control Systems for the Modern School—Minneapolis-Honeywell Regulator Company; This is Mosaic Tile—The Mosaic Tile Company; Stanley Hinge Guide—The Stanley Works.

Class III (General Promotional Literature)

Certificate of Exceptional Merit: Overly Fire Doorater and Swing Guide—Overly Manufacturing Company.

Certificate of Merit: Malvern Plant—Acme Brick Company; Brick Shapes—Glen-Gery Shale Brick Corporation.

Honorable Mention: Armstrong's Insulcolor—Armstrong Cork Company; Let's Face It . . . With Ceramic Veneer—Gladding, McBean and Company; Whether It's Traditional or Modern—Glen-Gery Shale Brick Corporation; Color-



Model of 18-story skyscraper designed by The Architects' Collaborative, Gropius' Cambridge firm, and Arthur Myhrum associated, to be built in Chicago this year, was included in Illinois Tech Exhibit

bestos Siding Sheets—Johns-Manville; Kawneer Prize B.A.I.D.—The Kawneer Company; Proof that Marble Costs Less, Wears Better, Lasts Longer—Marble Institute of America; Design of the Month Series—Pittsburgh Plate Glass Company; Ranch Craft—The Stanley Works.

Class IV (Space Advertising Directed to Architects)

Honorable Mention: Acoustical Materials Series—Armstrong Cork Company; Flooring Materials Series—Armstrong Cork Company; Roof Insulations Series—Armstrong Cork Company; Floor Products Series—Kentile, Inc.; Marble Series—Marble Institute of America.

50 Years With One Firm

THE New York architectural firm of Voorhees, Walker, Foley and Smith had a big occasion in May, when Andrew Weggenman marked his fiftieth anniversary with the firm. Mr. Weggenman, who has been project architect on some of their most important buildings, was honored by 220 employes of the firm, led by Stephen F. Voorhees, senior partner, at a dinner at the Hotel Biltmore in New York May 11.

Pickens Leaves Tulane

BUFORD L. PICKENS, director of the College of Architecture at Tulane University since 1950 and a faculty member since 1946, has been named professor of architecture and dean of the School of Architecture at Washington University, St. Louis. He succeeds Kenneth E. Hudson, dean of the School of Fine Arts who has been serving for the past year as dean of architecture as well.

Tulane has named a 1944 architecture graduate, John W. Lawrence, as acting director of its College of Architecture.

Gropius is 70

THE FOUNDER OF THE BAUHAUS and former head of the department of architecture at Harvard's School of Design reached three score years and ten on May 18; and some 200 architects, former students and other friends gathered at Chicago's Blackstone Hotel to honor Walter Gropius at a luncheon sponsored by Illinois Institute of Technology. Gropius himself was the main speaker, introduced by the Institute's director of architecture, Ludwig Mies van der Rohe, and he made his enunciation of his philosophy of architecture a specific denial of the view that Bauhaus principles have been, or ever from their nature could be, frozen into any arbitrary "style."

The retrospective exhibition of Gropius' work organized by Boston's Institute of Contemporary Art in collaboration with Harvard University and the Massachusetts Institute of Technology opened at Illinois Tech the same day.

Fuel for Future Fires?

CONSTRUCTION got under way last month on buildings for a new design school at Ulm, Germany, known as the NEW BAUHAUS. Max Bill of Zurich, architect and editor of the recently published book, *Form*, is architect of the buildings and rector of the school.

Support for the new school comes from a foundation established by Inge Scholl.

Clair W. Ditchy Heads A.I.A.

The 85th annual convention of the American Institute of Architects, just closing as this issue goes to press, elected Clair W. Ditchy of Detroit to succeed Glenn L. Stanton of Portland, Ore., as president. The rest of the new slate: first vice president—Norman J. Schlossman, Chicago; second vice president—Howard Eichenbaum, Little Rock; secretary—George Bain Cummings, Binghamton, N. Y.; treasurer—Maurice J. Sullivan, Houston; regional directors—Waldo B. Christenson, Seattle; Raymond S. Kastendieck, Gary, Ind.; Clyde C. Pearson, Montgomery, Ala.; Marcellus Wright Jr., Richmond, Va. A full report on the convention will be published next month.

Another Gold Medal for Wright

FRANK LLOYD WRIGHT at 83 appears to be holding his own in the perilous position of a prophet with honor even in his own country. When he received the 1953 Gold Medal for Architecture of the National Institute of Arts and Letters at a ceremony in New York on May 27, he remarked that he had once expected his lustre to increase as gold medals came to him but that he finds in fact they cause a sort of shadow to fall on his natural arrogance and can almost detect the approach of "that disease called humility." More characteristically, he called for the development in American architecture of a philosophy in place of the mere esthetic he feels dominates so much of contemporary architecture; for the growth in America of a culture which is more than mere civilization. Without such growth, he said, the architect who is also a poet will not be truly understood; and, he added, the architect who is not a poet is nothing.

Mr. Wright and the model of his building for H. C. Price Co., Bartlesville, Okla.: on the prairie, "where skyscrapers belong"

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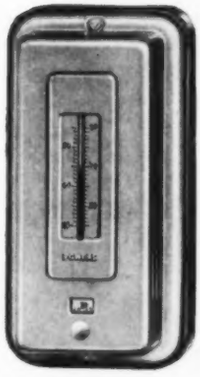

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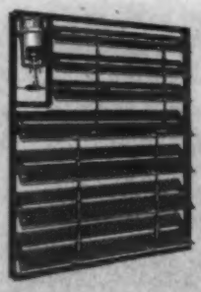

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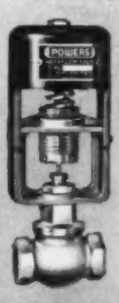

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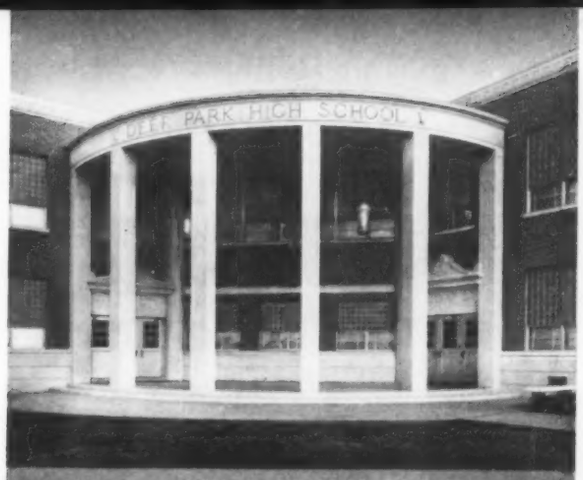
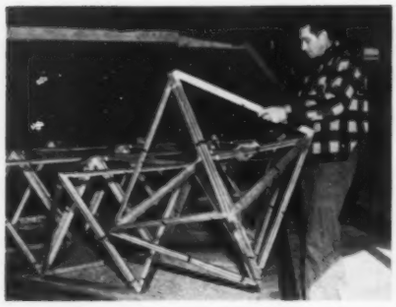
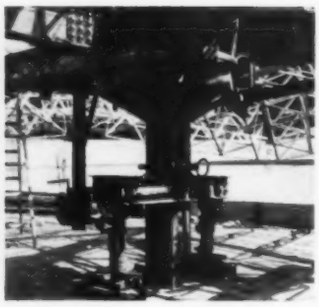


DEER PARK, TEXAS, HIGH SCHOOL

Architect and Engineer: Harry D. Payne
Heating Contractor: Keith Plumbing & Heating Co.



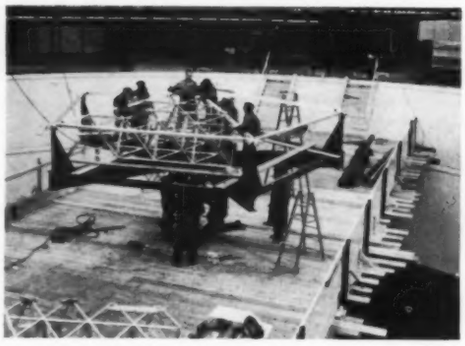


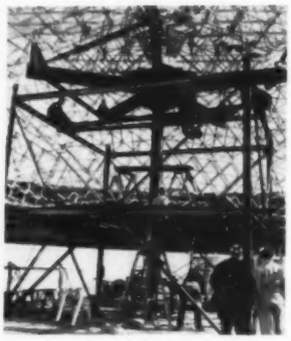
Octahedron (left); mast head and jacking system used for erection

FORD MOTOR COMPANY BUILDS FULLER'S DOME

The first commercial application of a structural principle developed by the far-ranging engineering imagination of R. Buckminster Fuller has been made in the remodeling of the Ford Rotunda in Dearborn, Mich., to resume its career as an exhibition building. The old building couldn't take the 162½ tons of steel needed to span its 93-ft inner court, so it got an 8½-ton aluminum dome, built to get structural strength from tension as well as compression. Guided by colored tapes stuck to prefabricated members, workmen made 19,680 spars into triangles, triangles into octahedrons, octahedrons into trusses (160 of them) and trusses into geodesic dome in 30 working days. Completed structure is covered with triangles of thin but tough plastic skin

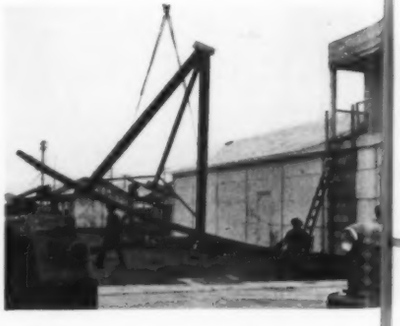
Truss being positioned on scaffolding mast (left); mast was jacked up as trusses were added





ROTORAMA, OR DRILL SHOPPING MADE EASY

National Supply Company's glass, steel and concrete exhibit building at the 1953 International Petroleum Exhibition at Tulsa put spectators inside showcase, merchandise outside. "Rotorama" was built around a 140-ft drilling mast and its air conditioned gallery looked down on machinery display. Structural supports are inverted tripods attached to steel pipes which join to make circular roof support 66 ft in diameter. Designer: Henry Dreyfuss, with Tulsa architects McCune & McCune; engineer, Fred Severud



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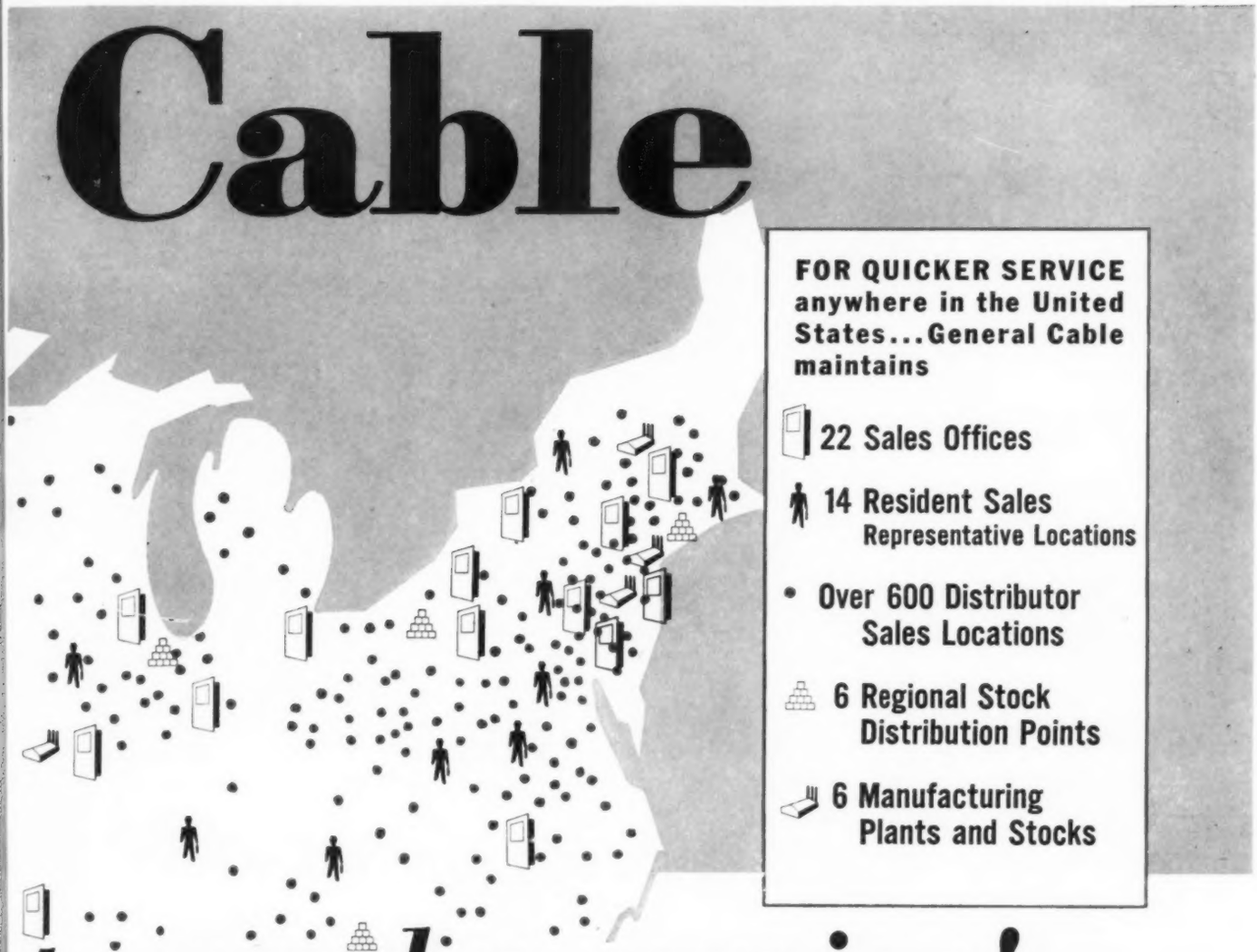

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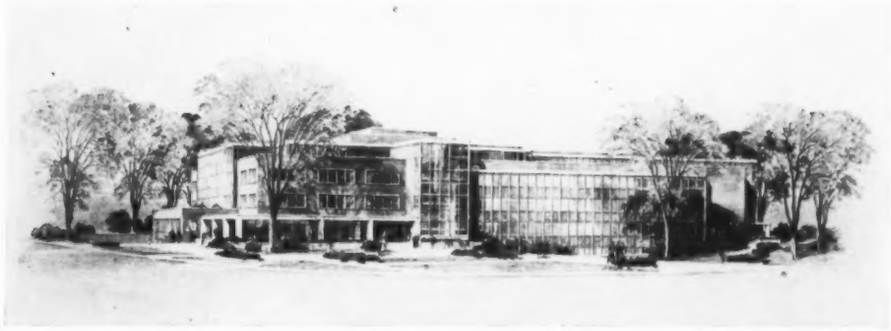


The new library will provide space for a million volumes, have 200 stack carrels and 103 study rooms. Ralph R. Calder of Detroit is the architect

PLANS ARE COMPLETED FOR NEW LIBRARY BUILDING AT MICHIGAN STATE COLLEGE

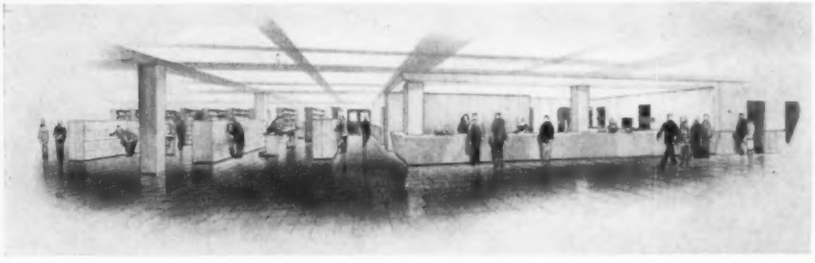
THE PROPOSED LIBRARY for Michigan State College at Lansing, Mich., will provide space for a million books and seating space for 3000 students, according to plans completed by Ralph R. Calder, architect, of Detroit. There will be 200 stack carrels and 103 study rooms.

The building is planned on a module 22 ft-6 in. sq with five rows of stacks 4 ft-6 in. on center. The columns consist of four heavy angles held together by ¼-in. steel batten plates and fire-proofed with 5 in. of vermiculite concrete. The hollow core of the columns is used for fresh air supply ducts. Each module becomes self-sufficient, permitting a flexible plan which will allow future rearrangements of space as library methods change.

The floor structure is mainly flat slab, using the smooth ceilings system to avoid drop heads and capitals. The exterior curtain wall consists of double glazing and porcelain enamel panels, both in an insulated aluminum frame.

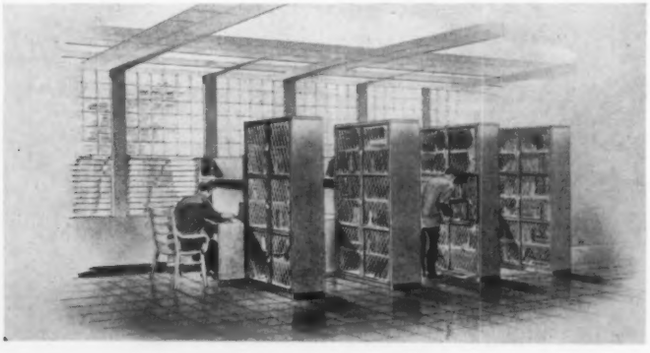
The ceilings throughout are 8-in.-sq aluminum louvered lighting panels, four per bay, in a perforated metal acoustical tile field. Fluorescent lighting tubes are hung below the painted concrete slab.

The warm air heating and ventilating system provides for future cooling.



Left: main charging desk and catalog. Flexible plan for public areas will permit future rearrangement of space as needs dictate

Right: social science and literature reading room. Mullions of curtain wall are 4 ft-6 in. on center to line up with the spacing of individual study tables placed on the outside walls of all reading rooms



Left: detail of stack carrels, lined up between mullions on outside of stack rooms. There will be 200

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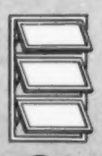

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NEWS FROM CANADA *by John Caulfield Smith*

CONTRACTORS' MANAGER SEES BUILDING COSTS STABLE

Costs in the Canadian construction industry probably will be more stable this year than at any time since 1946, when price controls were removed. This prediction was made by S.D.C. Chutter, manager, at a recent business meeting of the Canadian Construction Association's management committee in London, Ont.

Mr. Chutter pointed out that while it was still a little early to judge, a number of contracts already signed indicated a trend toward more moderate wage demands. In addition, construction costs generally have remained firm since last year. Practically all construction today is on a firm price policy with no escalator clauses.

Urges Sales Tax Reform

A few days before the London meeting, Mr. Chutter addressed a convention of the Canadian Builders' Supply Association in Montreal. Speaking on the federal sales tax, he cited what he termed the erratic pattern by which taxes were retained on some building materials while they were removed from most at the end of the war. He pointed out the following as examples of incongruous rulings:

- Bathtubs are exempt, but connecting pipes are taxable.
- Screen doors are exempt, but screen windows are taxable.
- Glass is exempt in office doors, but taxable in elevator doors.
- Steel is exempt in building frames, but taxable in bridge or dam supports.
- Cupboard doors are exempt, but complete cupboards are taxable unless they are below sinks.

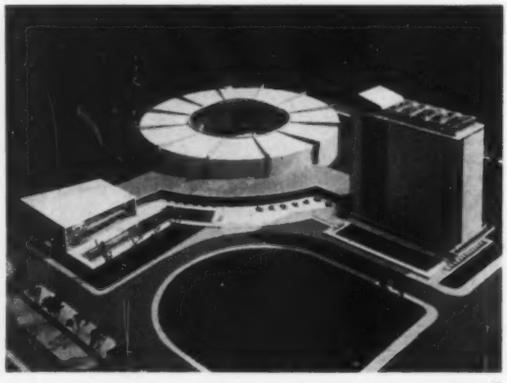
Mr. Chutter estimated that the sales tax makes up one per cent of the cost

(*Continued on page 30*)

STUDENT PROJECTS FROM UNIVERSITY OF TORONTO

Solutions to Design Problems by Fifth Year Men

Max Heet



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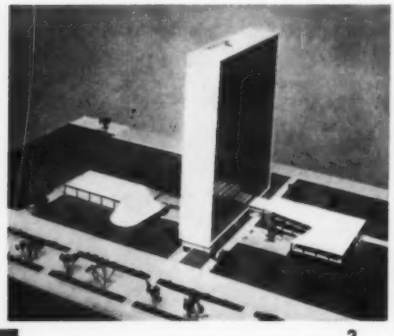
Max Heet



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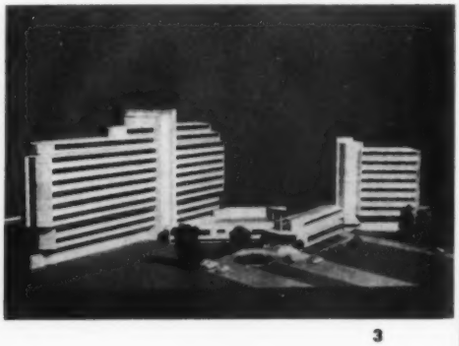
Toronto Globe and Mail



3

Toronto Globe and Mail

4

Max Hee

5

All the projects shown here were thesis subjects for graduating fifth-year students in Toronto's School of Architecture. The projects and their designers:

1. A Museum of Natural History—Samuel Young
2. Office building—Peter Allward
3. A jail for Toronto—Saul Fox
4. Trade Fair Center for Toronto—J. Malcolm Wells
5. Town plan for Clarkson, Ontario
—a combined class problem

Satisfaction with a seven-zone electric control system in the modern Administration Building (completed in 1939) led Johnson engineers to specify Barber-Colman "Control Center" systems in the famed Research Tower (dedicated in 1950). Today, electric control systems for both structures are operating reliably with a minimum of maintenance and service supervision.

An extraordinary example of contemporary architecture, the Research Tower required as advanced thinking on heating, ventilating and air conditioning problems as on the cantilever principle of construction. Six static pressure controllers operate a series of exhaust dampers through electronic relays to maintain a slight pressure within the building to reduce infiltration.

Laboratories calling for constant temperature and humidity required motor-operated proportioning valves ranging in maximum capacity from as low as 15 to as high as 1800 pounds of steam per hour. Special timers and program motors provided low temperatures and automatic coil defrosting. A total of over 400 control components was installed, wired directly to 17 "Control Centers" for handling heating, ventilating, and air conditioning requirements.

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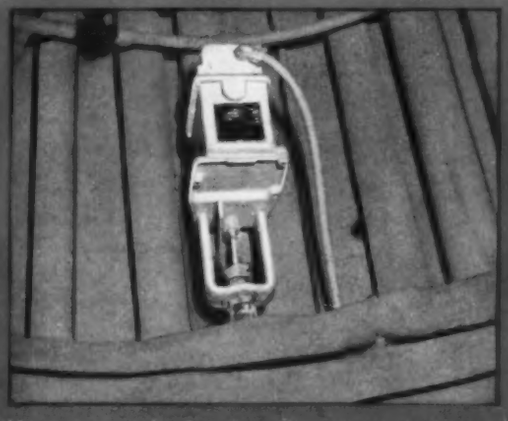
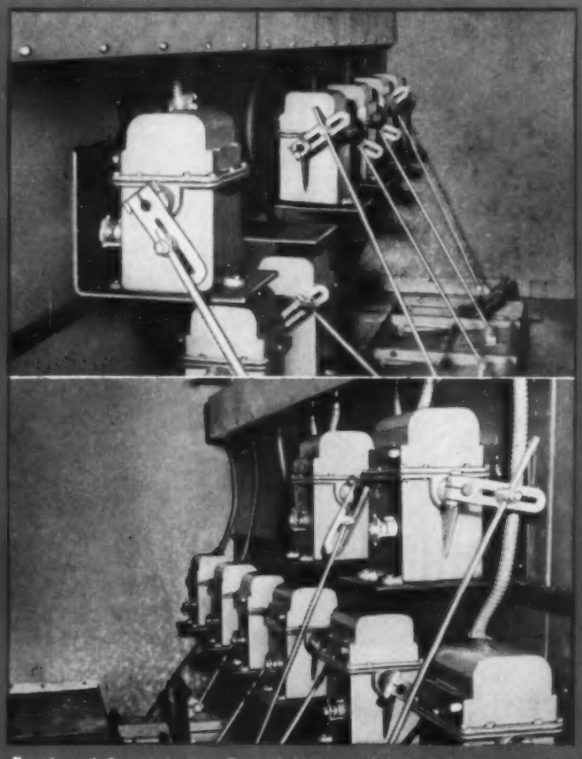


Motor-operated valves (above) and remote bulb thermostats (below)—typical of the over 400 Barber-Colman electric components used for temperature control in Research Tower.



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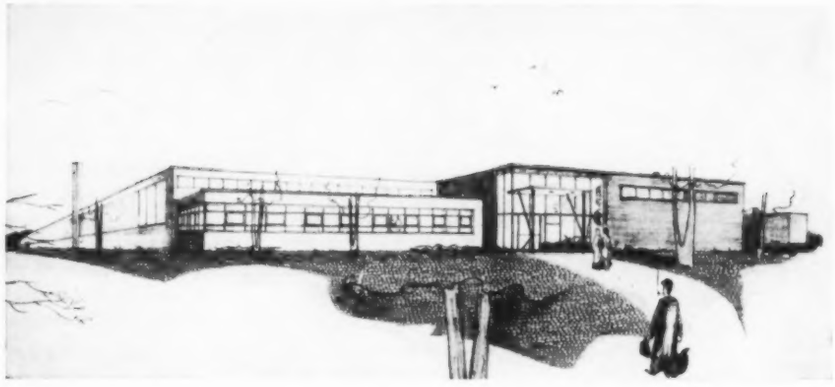
CANADA

(*Continued from page 26*)



New plant for Inner-Spring Mattress Company Limited, Toronto, covers 31,000 sq ft. The work of Irving Boigon, Toronto architect, it is located in a newly opened industrial area of York Township. Frame is steel with continuous steel sash. Floor is reinforced concrete

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of an average house, five to six per cent of the cost of an institutional building, with hospitals alone enjoying a blanket exemption from the tax. Since federal public works are a large part of taxed construction, he claimed that in this category much money only goes from one government pocket to another. The C.C.A., he said, is redoubling its efforts to have the sales tax removed from all building materials.

Construction Wage Hike Close to Average

Wage rates in industry generally increased by an average of 8.1 per cent during the 12-month period preceding October 1, 1952. Construction wage hikes were close to this average, with an 8.2 per cent rise.

The information, from a preliminary index just released by Hon. Milton F. Gregg, Minister of Labor, shows a slowing of the upward trend in wage rates. This can be seen in comparing the new average increase rate with that of the preceding 12-month period, which was 12.8 per cent.

Percentage changes in various industries between the last two survey dates are shown on the following table:

Industry	Per Cent Increase
Logging	19.3
Transportation and Communication	10.3
Mining	8.3
Construction	8.2
GENERAL AVERAGE	8.1
Service (laundries)	7.9
Manufacturing	6.5

The index is based on the annual survey of wage rates and salaries for selected occupations in most industries. The survey was conducted by the Department of Labor's Economics & Research Branch, and covers the last normal pay period preceding October 1, 1952.

(*Continued on page 32*)

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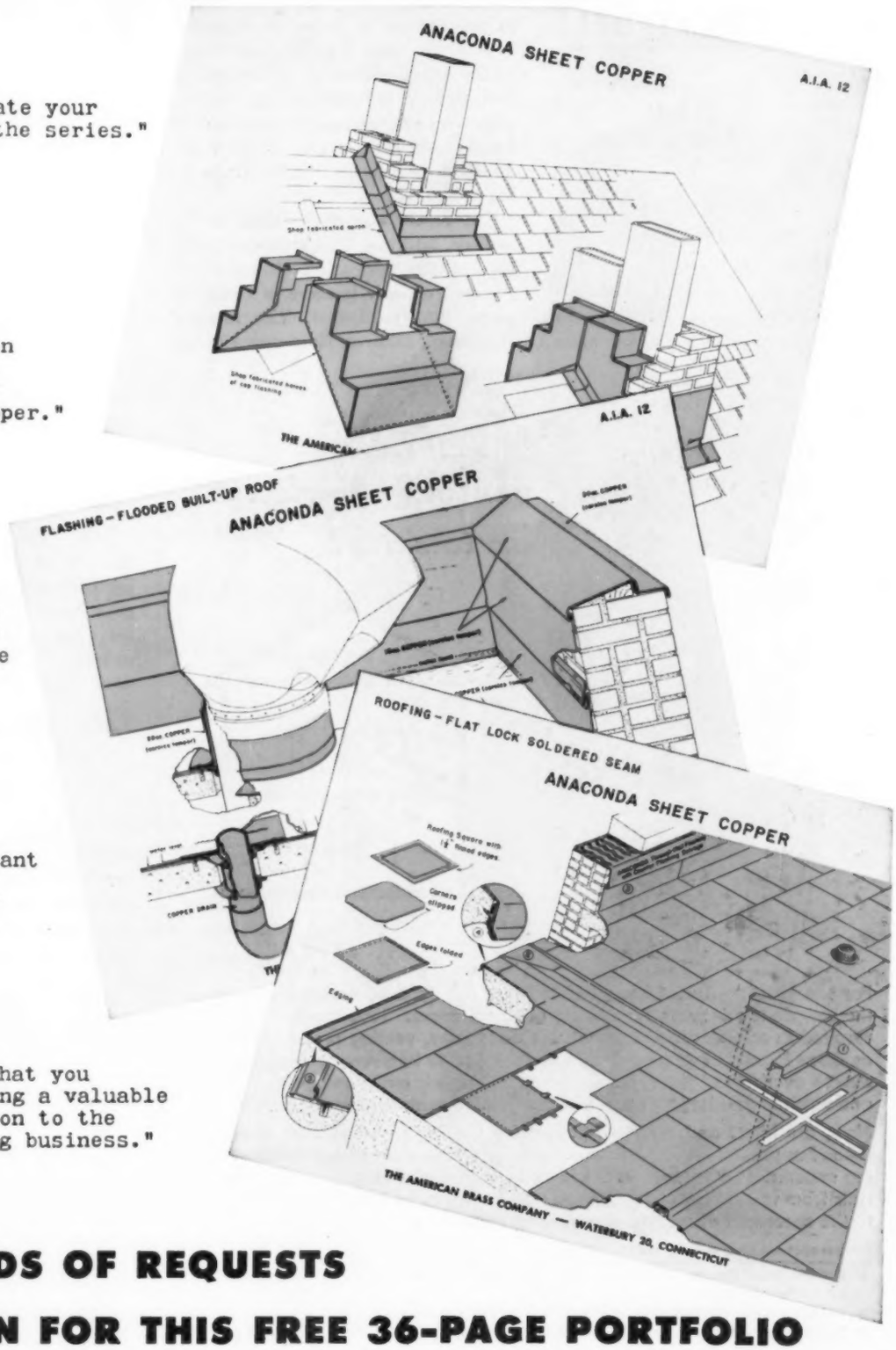

THOUSANDS OF REQUESTS POURED IN FOR THIS FREE 36-PAGE PORTFOLIO

Thousands of architects and sheet metal contractors have asked that we send them the Anaconda portfolio of detail drawings suggesting new designs and installation methods for all types of sheet copper work. The comments above are typical of hundreds of letters we have received telling us how helpful these drawings have been.

If you haven't a set of these drawings, we should like to send you one with our compliments. Simply write us on your company letterhead and ask for Portfolio S. We are sure that you, too, will find these drawings great timesavers and a short cut to sound design and good workmanship. *The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.* 1343

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ANACONDA®

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THE RECORD REPORTS

CANADA

(*Continued from page 30*)

Loan Approvals Provide 40,750 Dwelling Units

Loans for the construction of new dwellings continued to dominate the field last year, accounting for some 64 per cent of all loans as compared with 60 per cent for 1951. According to the annual report of the Dominion Mortgage & Investments Association, gross loan approvals by their members for $274,300,000 provided 27,500 single dwellings and some 13,250 units in multiple dwellings.

The report also shows that life insurance, loan and trust company members of the association channeled 51 per cent of their increase in Canadian assets into mortgages. The member companies, both on their own account and for the Central Mortgage & Housing Corporation, approved gross mortgage loans on real estate in Canada for some $428,600,000. This was an increase of 17 per cent over 1951's gross approval figure.

New building for the Hamilton, Ont., branch of the Bank of Nova Scotia features open glass façade to deemphasize "aloofness." Finished in stainless steel, oak paneling and marble, it is by McDonnell & Lenz, architects, Hamilton

Loans Average Higher

The average loan on a new single dwelling in 1952 rose to $7783 compared with $5140 in 1948. This reflects a smaller equity requirement combined with the higher cost of a house to the purchaser. In these circumstances a given amount of money cannot provide as many homes. Fewer people can obtain loans but those who do get bigger ones.

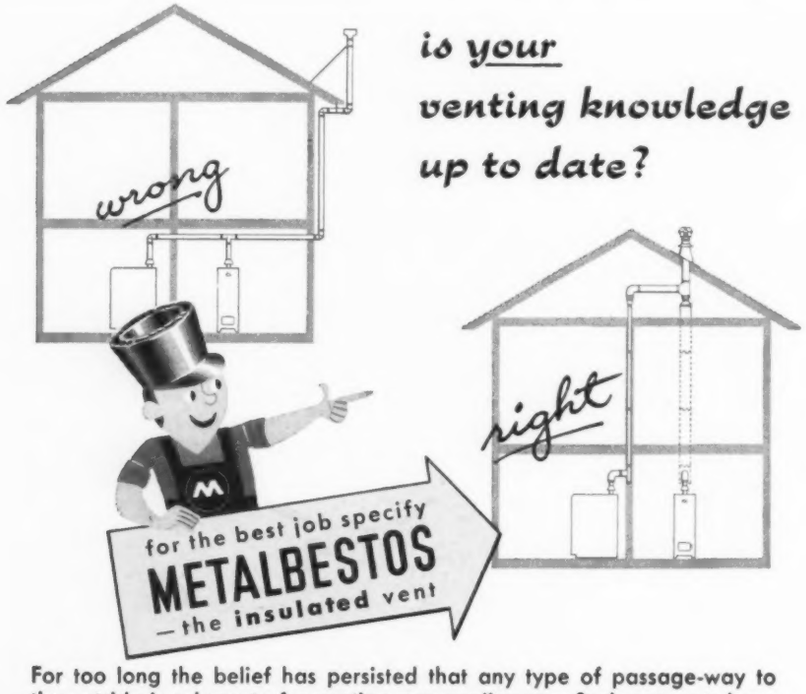
Member loan companies now have 72.6 per cent of their assets invested in mortgages in Canada, compared with 70.6 per cent at the end of 1939. The company and guaranteed accounts of member trust companies have approximately 34 per cent so invested. Of their assets in Canada, member life insurance companies have some 30 per cent invested in mortgages on real estate in Canada.

Construction Outlay Rises

The national accounts have estimated capital expenditures for the construction of new housing in 1953 at $981,000,000, compared to $850,000,000 spent in 1952. The estimate is made on the expectation that 1953 will show a substantial increase in the number of completions plus a larger number of starts than those in 1952.

Housing construction expenditures thus forecast represent 18 per cent of

(*Continued on page 36*)



is your venting knowledge up to date?

For too long the belief has persisted that any type of passage-way to the outside is adequate for venting gas appliances. Such concepts have resulted in erroneous, and sometimes dangerous, venting practices such as those illustrated above. They have resulted in homeowner complaints due to overheated walls, musty, stale-smelling air and damage to walls and furnishings—largely caused by uninsulated vents improperly installed.

Now, the latest and most comprehensive venting research ever undertaken has proved the importance of properly designed and installed venting systems. Factors such as the location and size of vents and the materials from which they are made are now known to be of vital importance to the successful operation of a venting system.

For correct venting specify METALBESTOS.

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VENT INSTALLATION HANDBOOK
Based on the latest venting research, this booklet explains the important principles and rules to follow for the proper venting of gas appliances. It includes information on vent capacities and the location of vents together with illustrations of typical venting installations. Write today to Dept. L.

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ACOUSTICAL MATERIALS AT WORK

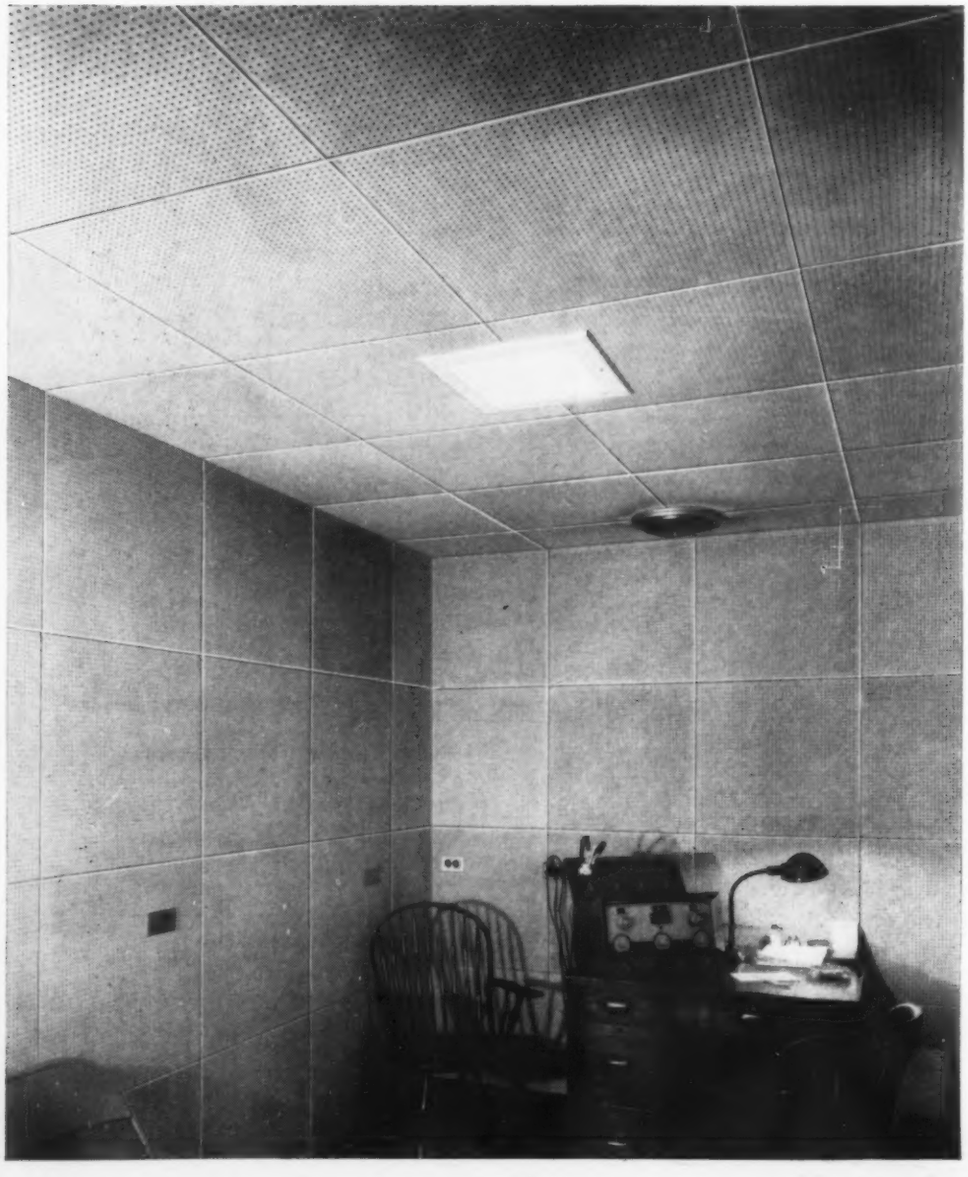
THE PRESBYTERIAN HOSPITAL

at the Columbia-Presbyterian Medical Center, New York, N. Y.

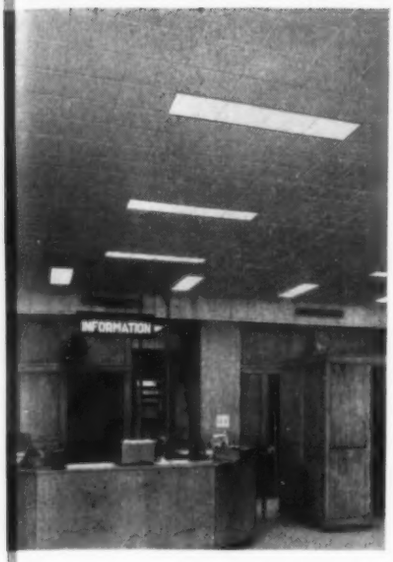
Architect: Voorhees, Walker, Foley & Smith

General Contractor: Gens-Jarboe, Inc.

Acoustical Contractor: Wm. J. Scully Acoustics Corp.



This audiometric testing room was especially designed to keep it free from noise transmission and vibration. It consists of a room within a room. The inside room is constructed on isolators, with air spaces between inner and outer walls. Here, where rugged conditions were essential, Perforated Asbestos Board with a glass wool sound-absorbing pad was chosen.



There's no noise problem now in Vanderbilt Clinic's admitting lobby. Although 1500 patients, visitors, and staff members pass through here daily, Arrestone ceilings maintain comfortable quiet . . . prevent build-up of disturbing noise levels.

Both classes and conferences are conducted more easily and pleasantly under sound-absorbing ceilings of Arrestone. This material soaks up as much as 85% of the noise that strikes it, promotes beneficial quiet for effective concentration.

The Perforated Asbestos Board ceiling in this busy nurses' work room keeps the noise level down. The high acoustical efficiency of this economical material is not impaired by the excessive moisture of the room's sterilizing equipment.

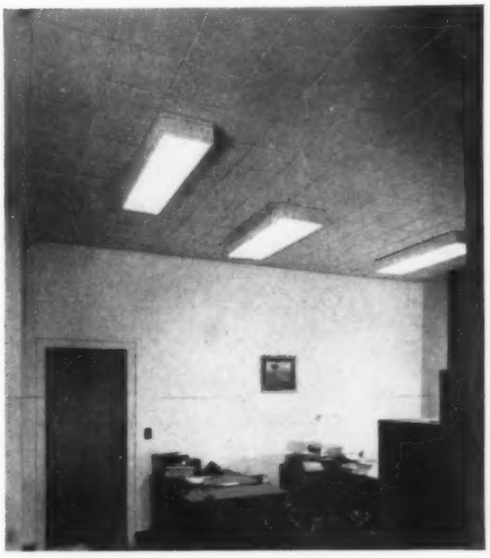
When The Presbyterian Hospital was sound conditioned, acoustical efficiency, though highly important, was not the only consideration in the choice of materials. The architects wanted ceilings that were good looking, fire-safe, and easy to maintain. Armstrong's Arrestone and Perforated Asbestos Board were the materials chosen.

Arrestone was used in offices, corridors, wards, and classrooms throughout Vanderbilt Clinic and New York Orthopaedic Hospital, two units of The Presbyterian Hospital. Arrestone is an attractive efficient metal-pan acoustical material. Completely incombustible, it meets the strictest fire-safety regulations. Arrestone has a white, baked-on enamel finish that's easily washed or repainted.

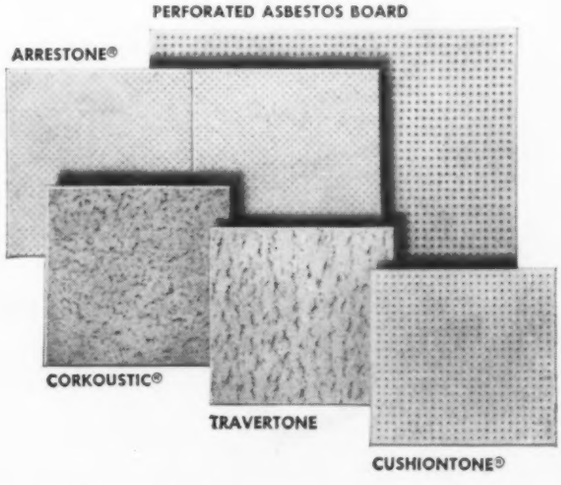
Arrestone is installed by mechanical suspension. When repairs on piping or wiring are necessary, individual units of Arrestone can be removed easily for access to the ceiling space above.

Perforated Asbestos Board was used in the audiology section of Vanderbilt Clinic. This area needed a hard-surfaced material that could be applied to walls as well as ceilings. Fire-safe, easy to clean, and moisture resistant, this material was also installed in pantries and utility rooms in Presbyterian and New York Orthopaedic Hospitals.

Armstrong's complete line of acoustical materials offers a wide range of special features to suit any sound-conditioning need. Call in your Armstrong Acoustical Contractor for free, expert advice. For the booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 4207 Rock Street, Lancaster, Pennsylvania.



Offices, too, were sound conditioned to give office personnel in Vanderbilt Clinic the benefit of quiet. These Arrestone ceilings stay new looking with a minimum of maintenance . . . help provide pleasant, fire-safe working conditions.



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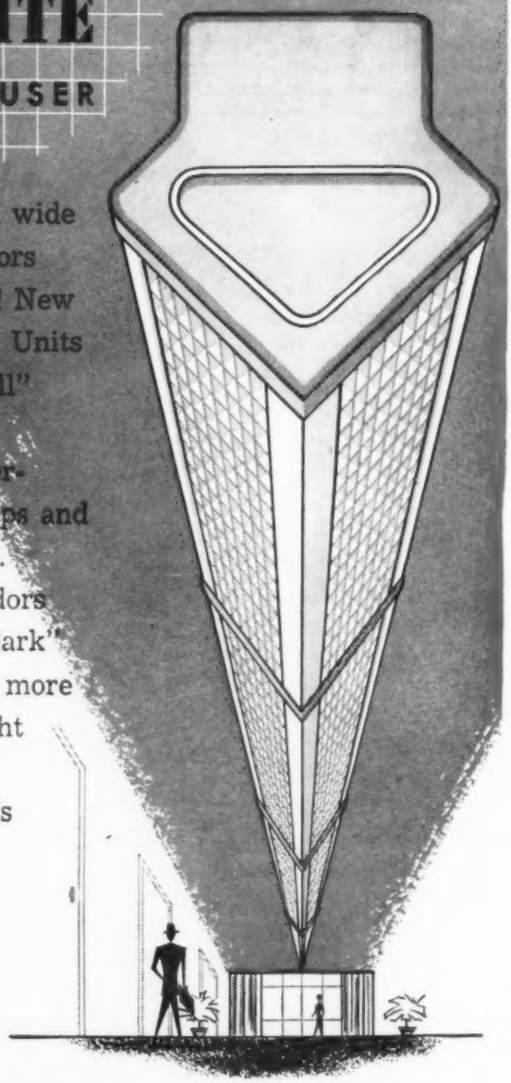

At last—you can fill wide hallways and corridors with practical light! New Guth "V" Corridor Units provide "wall-to-wall" illumination. The GRATELITE Louver-Diffuser shields lamps and is easily maintained. Hallways and corridors "come out of the dark" and turn into safer, more cheerful lines of light that guide the eyes and the step. V·C·U's available in 4′ & 8′, 1 & 2 light models.

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Guth

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THE RECORD REPORTS

CANADA

(*Continued from page 32*)

total capital expenditures. In 1952 this was less than 17 per cent. The realization of the 1953 forecast will not be easy, however. The shortage of land serviced with municipal and educational facilities is large and will involve large sums to rectify, in competition with the demand for capital funds for other purposes.

House Building Up In First Quarter

House building activity continued at a high level during the first three months of 1953, according to the latest issue of "Housing in Canada." The quarterly report of the Central Housing & Mortgage Corporation shows that new housing starts for the period in centers of 5000 and over population numbered 10,500.

This figure represents an increase of 68 per cent over new housing starts in the same period last year and further indicates the continuation of the marked upswing in house building which developed during 1952.

The report attributes the advance in the rate of house construction during 1952 to increased activity by lending institutions in the mortgage field, particularly under the joint loan provisions of the National Housing Act. Lower down payment requirements had been introduced under the act in October 1951.

Other factors contributing to the increase were a more adequate supply of construction materials and labor than at any time since the end of World War II; favorable weather conditions which permitted the high level of building operations to continue in the fourth quarter of 1952; and rising personal incomes, which affected demands for new housing. Furthermore, there was no appreciable increase in construction costs during the year.

R.A.I.C. at the Coronation

The Royal Architectural Institute of Canada, for which Her Majesty Queen Elizabeth II is an Honorary Patron, was assigned a seat in Westminster Abbey for the recent Coronation. The president of the Institute, R. S. Morris of Toronto, represented Canada's architects on the historic occasion.

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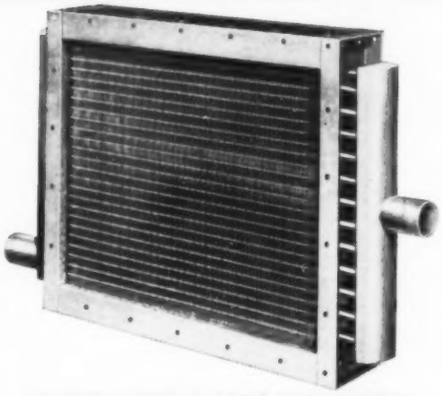
1. Corrosion-resistant red brass tubes, staggered in multiple rows for maximum efficiency. Copper fins, heavy-wall Admiralty tubes available on special order.
2. Tubes mechanically expanded to fin collar to form double-wall, continuous metal transfer surface. Assures fidelity to rated standards throughout the life of the coil.
3. Headers formed from heavy-gauge (3/16"), hot-rolled steel with tube ends brazed into headers to insure a permanent, leak-proof joint. End support plate permits free expansion and contraction of tubes.
4. Heavy-gauge steel intermediate tube support formed by two cross angles welded to the tube support and the coil casing. Gives permanent reinforcement to entire coil structure.
5. Galvanized steel casings, with double channel top and bottom, provide support and protection for core. Flanges on four sides facilitate duct mounting and multiple bank installations.
6. Young steam and hot water Coil ratings conform to the proposed Standard Code of the Heating and Cooling Coil Manufacturers Association.
7. Young Coils offer maximum versatility in specifications due to their greater capacity range. Available in either 5 or 11 header widths, 19 tube lengths.



TYPE "S" STANDARD

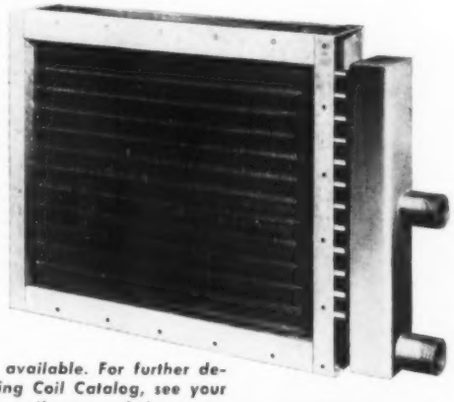
For steam or hot water service. Galvanized steel casings complete with drilled flanges on all sides for connecting to duct work, and permitting stacking in banks. Available in 11 nominal widths, 19 lengths from 12" to 120". Suitable for steam pressures from 2 to 150 psi and temperatures to 400 F. Type "S" coils incorporate Young features described at left.

TYPE "HD" HEAVY-DUTY

Recommended for severe industrial applications. Have same design features as Type "S" (above) except that the tubes are larger and of heavier-walled construction. Designed for steam pressures to 300 psi, and temperatures to 500 F. Available in 5 nominal widths, 19 lengths from 12" to 120".

TYPE "SD" STEAM DISTRIBUTING

For steam systems where performance is regulated by modulating supply of steam to coils. Double-tube feature provides protection when entering air temperatures are below freezing, and even temperature distribution along face of coil. Casing detail similar to Type "S." Available in 5 nominal widths, 19 lengths from 12" to 120". Suitable for steam pressures from 2 to 150 psi, with 25 psi recommended maximum.



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By Ernest Mickel

HHFA RESEARCH KILLED — LIQUIDATION IS STARTED

A LACK OF INFORMATION on activities of the research division of the Housing and Home Finance Agency did as much as anything else — except the economy wave — to bring about the end of the program. The issue of whether to revive the research effort, which had been laid to rest by the House of Representatives a few days earlier, was argued for two hours on the floor of the Senate (in May); but Senator Ferguson (R-Mich.), battling for the Appropriations Committee decision to halt Federal government housing research immediately, won his point on a 62–19 vote. His antagonist was Senator Joseph McCarthy (R-Wis.), who cast himself in a role far afield from his familiar one of investigator.

(*Continued on page 270*)

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Let CASTELL lay it on the line for you, too. Order from your own dealer. Recognize it by its beautiful "CASTELL green" polish.
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On the Record

Secretary of Commerce Sinclair Weeks believes a vast public works program should be used to help stem any business decline only as a last recourse. Secretary Weeks said at the 61st general meeting of the American Iron and Steel Institute in New York last month: "Public works are naturally an addition to, not the main reliance of, the national economy, and if we encourage industry generally, and particularly work to stimulate the 25 per cent of our free economy which is the service industries, we shall surely put off the day when we have to have recourse to emergency public works and other artificial stimulants."

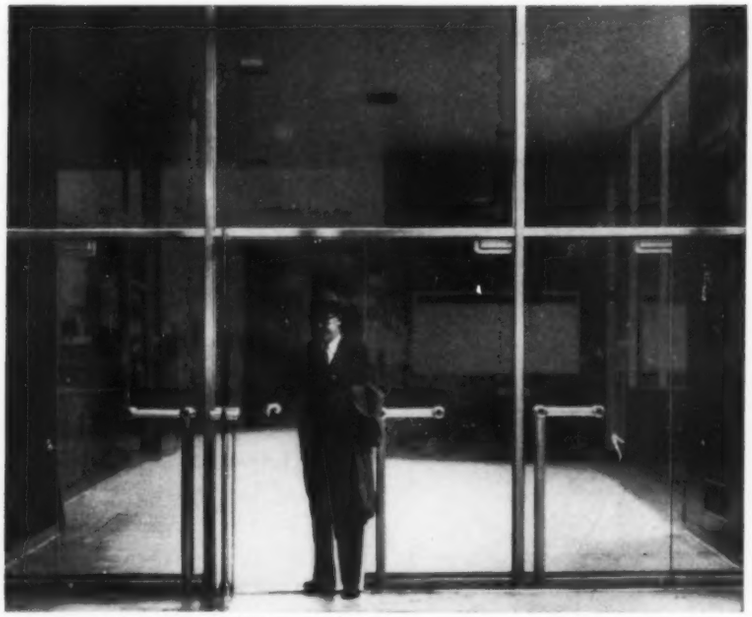
Architects of public housing projects ought to be freed by the Public Housing Administration of all but two basic requirements, Architect Henry S. Churchill, F.A.I.A., told the recent National Housing Conference — minimum area per dwelling and maximum density per gross acre. Deploring the well-known complexities of PHA administration, Mr. Churchill suggested it might be worthwhile for PHA to adopt a policy of saying to local authorities, in effect: "Here is the money for a certain number of dwellings; build what you want, where you want, how you want. If you can't build within your budget, you and your architect will be responsible. When you are finished, there will be an audit, so don't try to get away with too much."

1953 construction is still expected to reach $33.5 billion. The Department of Commerce, reaffirming its estimate of last fall, looked for total private activity this year of $22.7 billion, five per cent over 1952 and a new record.

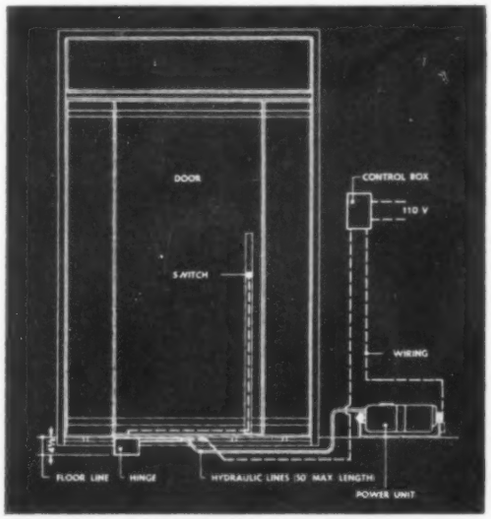
The news from the Atomic Energy Commission's Experimental Breeder Reactor at Arco, Idaho, last month was another milestone on the road to commercial utilization of atomic energy. Additional supplies of raw materials for the production of atomic energy were assured by the success of the reactor in "breeding" more atomic fuel in the form of plutonium from non-fissionable uranium than the amount of fissionable uranium-235 consumed in the process. AEC Chairman Gordon Dean had a warning word, however: "This news does not mean that economic power from atomic fuels is here. . . . The real significance of breeding is that it is now possible for mankind to utilize all of the uranium that can be extracted from the earth's surface for atomic fuel, whether it is fissionable or not in its natural state." Of the earth's reserves of natural uranium, estimated at 25 million tons, less than one per cent is fissionable in its natural state.

finest automatic door opener"

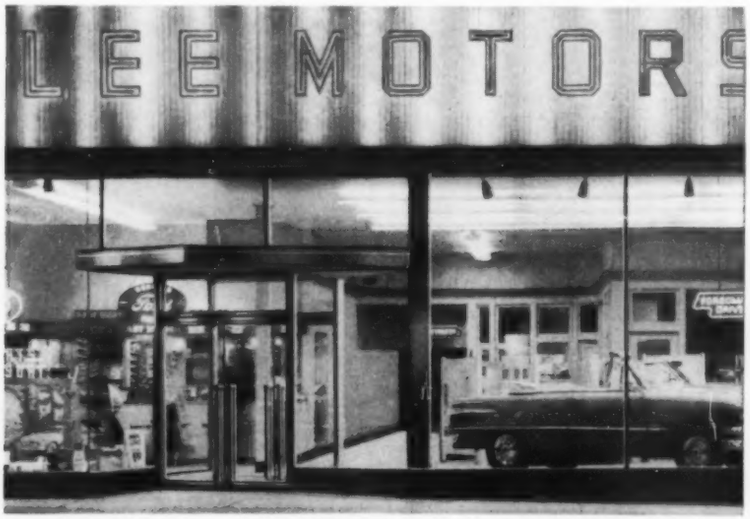
FOR ALL KINDS of industrial and commercial buildings, leading American architects are specifying the Pittcomatic automatic door opener. This building in South Bend, Indiana, is an interesting example. Architects: Schwartz & West, South Bend, Indiana.



BANK EXECUTIVES are "sold" on the Pittcomatic. They state that their customers like the easy response of doors having this automatic opener; that these installations have actually attracted more customers. Architect: Wyatt C. Hedrick, Dallas, Texas.



THE POWER UNIT supplies hydraulic power to the hinge under the door through ⅜" copper lines. The power unit is activated by a 10-volt circuit in the handle which passes through the control box. Oil lines are 3000-lb. test. The action of the door in all respects can be regulated by adjustments provided in the control box and the hinge. No power can build up. It is a safe door.



IN RETAIL STORES, like this automobile showroom in Toledo, Ohio, the Pittcomatic not only brings the practical advantages of its automatic operation, but, with Herculite Doors, adds to the over-all feeling of open-vision, which is such a proven sales stimulator. Architects: Sanzenbacher, Morris & Taylor, Toledo, Ohio.

For complete information on the Pittcomatic, write to Pittsburgh Plate Glass Company, Room 3287, 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

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CONSTRUCTION COST INDEXES

Labor and Materials

United States average 1926–1929 = 100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1940	126.3	125.1	132.2	135.1	131.4
1946	181.8	182.4	177.2	179.0	174.8
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.4	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	265.2	262.2
1952	278.2	274.8	271.9	274.9	271.8
Feb. 1953	278.2	274.8	273.7	277.4	273.6
Mar. 1953	278.9	275.4	274.9	279.0	274.2
Apr. 1953	278.9	275.4	274.9	279.0	274.2
	% increase over 1939				
Apr. 1953	125.8	125.0	110.3	109.1	110.8

ATLANTA

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1930	82.1	80.9	84.0	86.1	83.6
1935	72.3	67.9	95.1	87.1	85.1
1939	86.3	83.1	96.9	97.4	94.7
1940	91.0	89.0	136.8	98.5	97.5
1946	148.1	149.2	158.1	136.4	135.1
1947	180.4	184.0	178.8	157.1	158.0
1948	199.2	202.5	180.6	178.8	178.8
1949	189.3	189.9	185.4	180.8	177.5
1950	194.3	196.2	204.2	183.7	185.0
1951	212.8	214.6	88.6	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
Feb. 1953	220.2	222.5	215.6	214.1	217.7
Mar. 1953	221.7	223.3	217.9	218.1	220.0
Apr. 1953	221.7	223.3	217.9	218.4	220.0
	% increase over 1939				
Apr. 1953	156.9	168.7	129.1	124.2	132.3

ST. LOUIS

1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1940	112.6	110.1	119.3	120.3	119.4
1946	167.1	167.4	159.1	161.1	158.1
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
Feb. 1953	260.3	253.3	253.7	261.4	253.9
Mar. 1953	261.1	254.0	255.2	263.5	254.6
Apr. 1953	261.1	254.0	255.2	263.5	254.6
	% increase over 1939				
Apr. 1953	136.9	137.4	116.3	119.9	113.9

SAN FRANCISCO

1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1940	106.4	101.2	116.3	120.1	115.5
1946	159.7	157.5	157.9	159.3	160.0
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
Feb. 1953	251.9	246.3	249.8	253.9	254.4
Mar. 1953	252.3	246.7	250.4	253.9	254.4
Apr. 1953	252.8	247.1	251.4	255.4	254.8
	% increase over 1939				
Apr. 1953	139.4	148.8	114.1	109.5	118.7

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

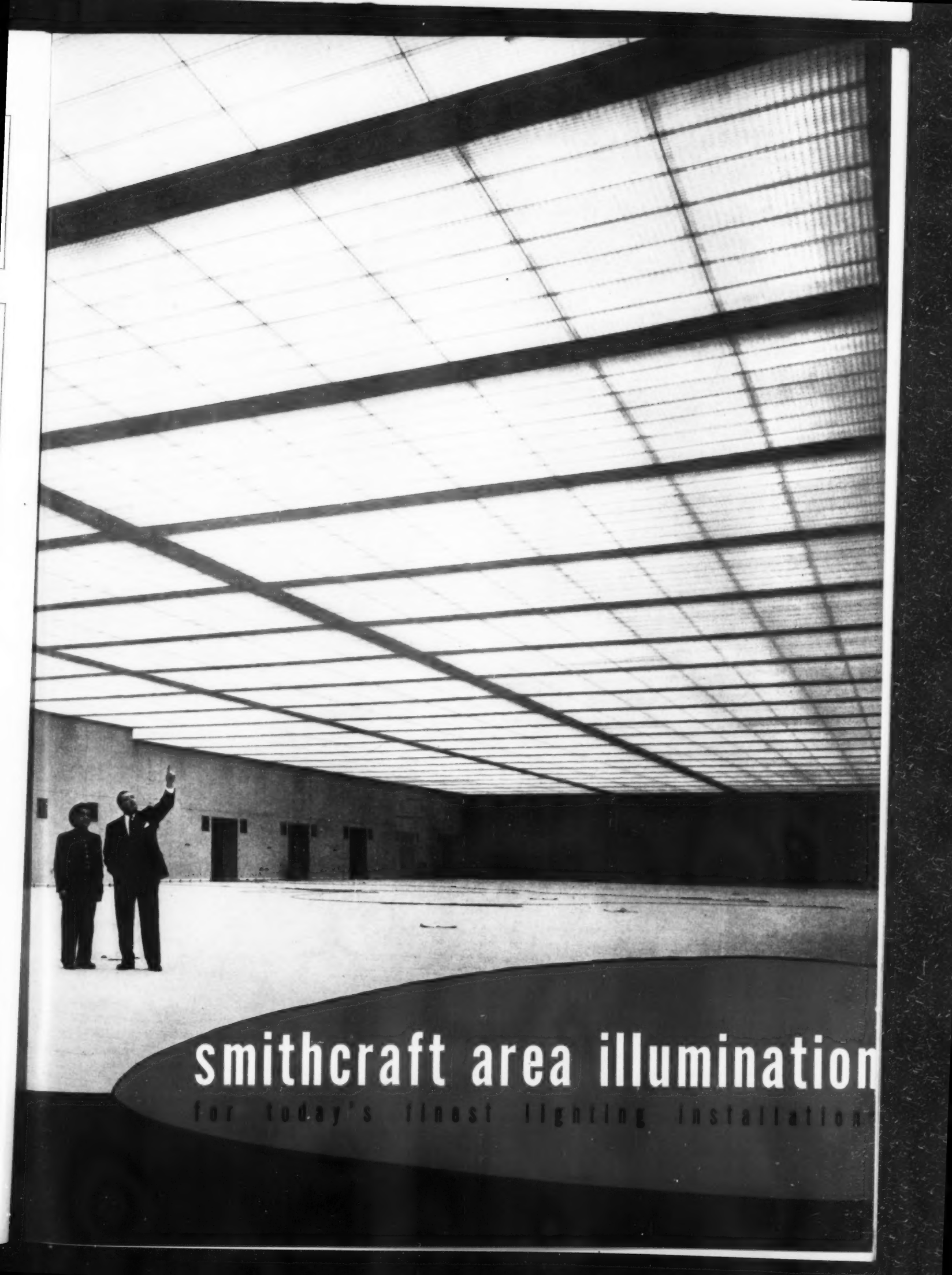
Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear regularly on this page.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REQUIRED READING

"WE WERE HAVING SOME PEOPLE IN FOR COCKTAILS"

The Legendary Mizners. By Alva Johnston. Drawings by Reginald Marsh. Farrar, Straus & Young. (101 Fifth Ave., New York, N. Y.) 1953. 6 by 9 in. 304 pp. $3.75.

REVIEWED BY FRANK G. LOPEZ, A.I.A.

Addison Mizner by Reginald Marsh. Illustration from "The Legendary Mizners"

REVERENCE for the exotic personality in these taxing days seems to take a bookish form. There are probably as many robber barons operating now as there were in the feudal era before World War I, but it isn't discreet or fashionable to idolize the living example. The dead are different.

The quirk of human nature — should we say, *American* human nature? — that clothes the dead scoundrel in a romantic shroud makes such a book as "The Legendary Mizners" an almost sure-fire best seller. It is witty; much of it appeared as *New Yorker* profiles, which guarantees its urbanity; it pretends to no moral conclusions, which makes for comfortable reading. Its principal characters are a shady "architect" and his brother, a wise-cracking con man — the latter a cousin of the type quite successfully exploited in slick magazine short stories a few years ago and before that definitely treated by Herman Melville.

The present book is an excellent cafe-society opus, episodic to the point of being painfully staccato; and now that the magazine pieces have been assembled and amplified the succession of declarative sentences becomes rather overwhelming. One might also discover in the pyrotechnical prose a parallel to other aspects of modern life: to the repeated catch-phrase, to the classical allusion so outrageously prostituted that one forgets the affront for the ungodly humor, to the unconscious and revealing reliance on clichés verbal, mental and architectural.

That is not to say it is a profound book or even an accurate mirror of any but one aspect of its times. It might have been both, had Alva Johnston lived to put it into real form. He was a penetrating writer, an accurate reporter, an indefatigable digger after facts; it is evident that Richard Rovere correctly described him, on the front page of *The New York Times'* Sunday book section, as a "meticulous, almost obsessive word-chooser." But Johnston died in 1950 and obviously this book was prepared for publication by a smaller talent. Johnston's other articles and books, exhibiting all these characteristics, have more depth.

There is plenty of opportunity to capture the reader's interest in the various locales to which the Mizner brothers hopped, often only a jump ahead of the sheriff: California in formative years, Guatemala, the Klondike, New York's upper crust, the Florida Golconda. There is plenty of glamour in these settings, and a plethora of picaresque adventure. That Addison Mizner, as the never-legitimately-frocked architect, sartorially eccentric, studiedly profane and quite unscrupulous, could so successfully mulct the other gaudy and financially more able public figures of that day cannot help but appeal to the envious, who are many. The impression that here is a sort of off-beat modern Robin Hood is also inevitable. Besides, this book is all undisputable fact, and very, very funny.

Aside from this public receptivity to the theme there is serious doubt that the comic glorification of a pair of scoundrels, though it may provide uproarious cocktail conversation, can produce a valuable literary work. Is straight reportage a valid approach when one deals with mores *and* morals? Are we, at our stage of civilizational development, disinclined to the thought necessary before we can express tenable opinions on such subjects? Are the fast buck and the bon mot all-important? We think optimistically that to quite a few people such questions matter: but regardless of one's attitude toward moral or literary principles, architects as professional people are deeply concerned in the Mizner legend whether they wish to be or not.

An unwelcome fact obtrudes after even superficial reading of this book. Think back over references to architects in recent literature. In short stories or plays the architect is a namby-pamby, a failure, a cryptic mystic, or all three. Seldom is either his profession or his character as his profession molds it essential to the theme. In a novel of a decade or so ago (wasn't it a movie, too?) the architect-hero was a pompous psuedo-esthete who, repugnant though he was, found women to climb into bed with. As long as he could provide the interest of sex and misunderstood mysticism the hero might perfectly well have been any other variety of professional practitioner, provided the profession was esoteric. Now we have the Get-Rich-Quick-Wallingford-Mizners, two of them, one the "architect" credited literally with being the architect of the Florida bubble, who is easy to display to an uninformed public as another example of the unknown profession.

Aside from shortcomings of a wholly moral nature, Addison Mizner's slight architectural talent consisted not only of copying Latinesque precedent; on his own or through emissaries he bought the originals, sold them to clients, had them built into his works, and collected a fat double fee. Even for an age with such meager architectural principles this is rather appalling. The Latin touch became characteristic of resorts, however, even of spas which Mizner would have scorned: Atlantic City, Mackinaw Island and others. Despite careful statements setting forth Addison Mizner's lack of architectural training and his

(Continued on page 48)

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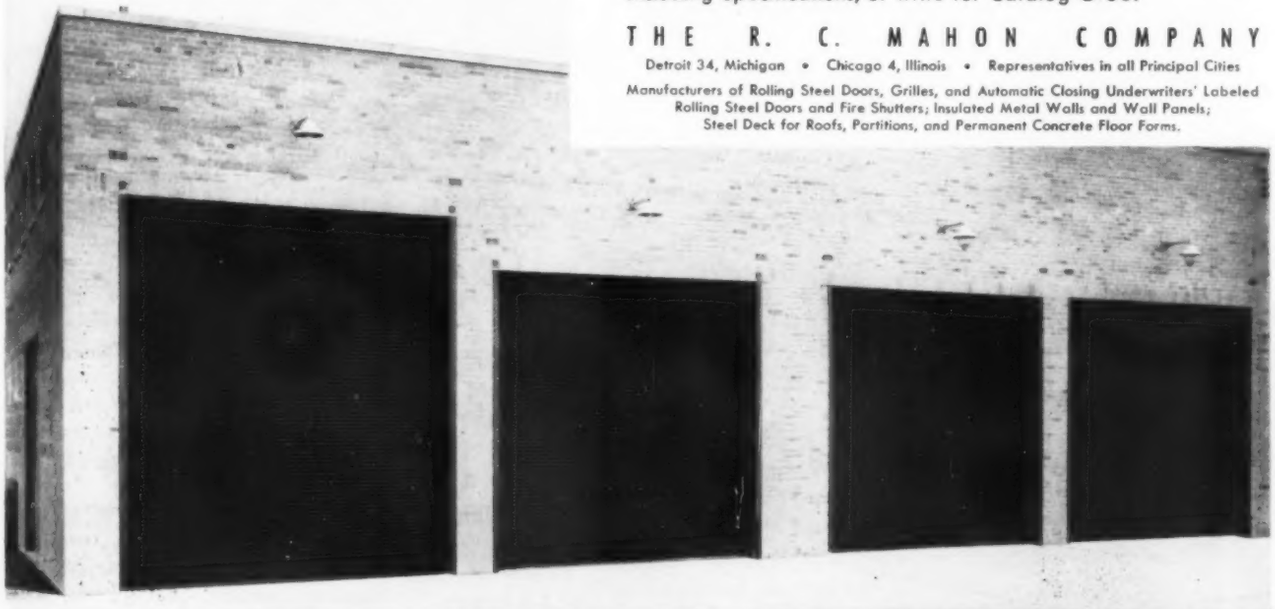

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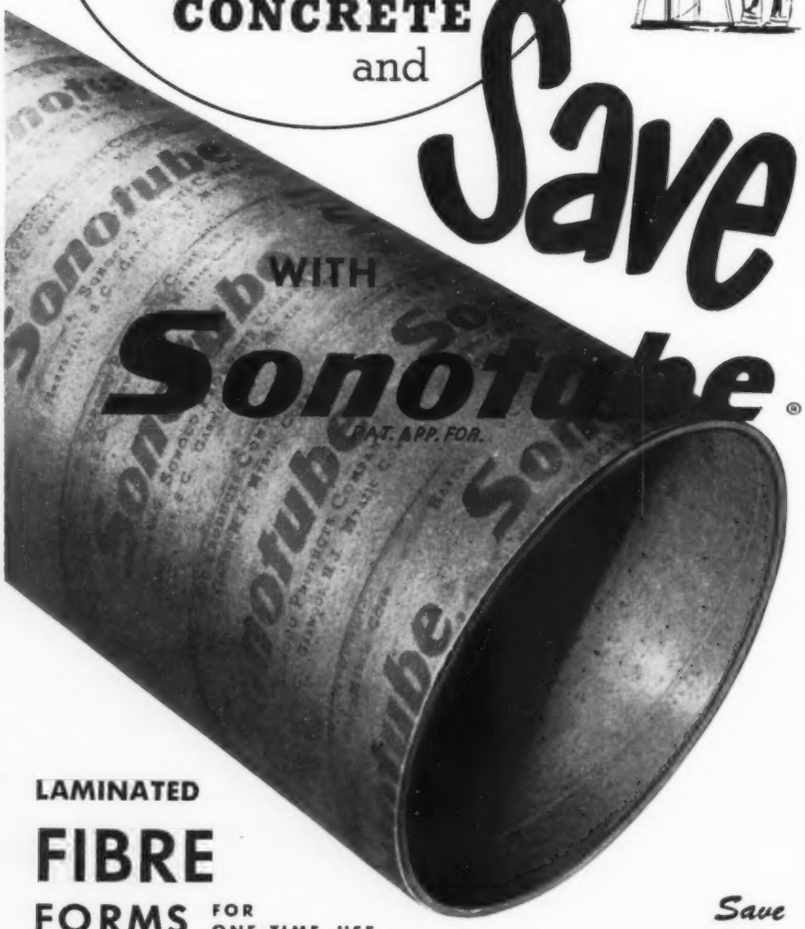

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REQUIRED READING

(*Continued from page 46*)

difficulties in obtaining a license to practice (Johnston was too good a reporter to neglect the truth), the book hardly enhances the conception of the profession. Unfortunately one need not search far to find parallels to the Mizner phenomenon in today's society.

Perhaps we are too forthrightly humorless in upholding the dignity of our profession. We do have our jokes and even our belly-laughs; are we wrong in thinking they are esoteric? At any rate, we know the devastating effect cocktail conversation can have on a reputation. Should we read this book in preparation for our own defense? Does our special stock rise because an amoralist practiced at architecture?

CHAIRS

Chairs. Interiors Library No. 2. Edited by George Nelson. Whitney Publications, Inc. (18 E. 50th St., New York 22, N. Y.) 1953. 9½ by 12¼ in. 174 pp., illus.

As contemporary architecture becomes more and more spatial, interiors gradually dissolve and accommodations for living are absorbed or built in. More and more, conventional pieces have been incorporated as integral parts of living space. Of all such furniture the chair alone has been able to resist such integration and has survived as an intact visual object in interiors depleted of conventional furnishings. In both these and less extreme instances, the chair increasingly assumes an important role in the interior setting. "It becomes as much a piece of sculpture as an object of utility."

A strong belief in this concept is manifested in the material represented in "Chairs," the second volume in the new "Interiors Library" collection of books. The first was "Living Spaces," reviewed ARCHITECTURAL RECORD, February 1953, pp. 46, 48. The books are "devoted to all aspects of design" and are edited by George Nelson, architect and furniture designer.

An impressive combination of lucid text and handsome pictorial presentation, it analyzes and illustrates contemporary seating. Perhaps the most comprehensive work of its kind, it is certainly the most logically organized.

The introductory part of the book touches lightly upon the historical background of seating, from Chippendale and Hepplewhite in the 18th Century, through Thonet in the 19th, to Breuer,

(*Continued on page 310*)

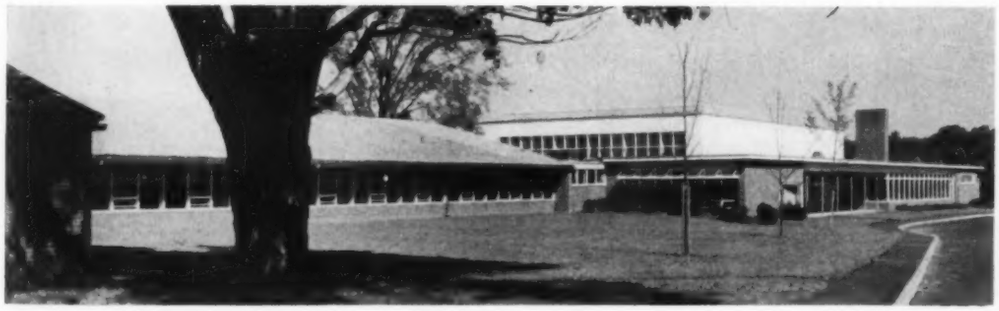
ARCHITECTURAL RECORD

When elements become standardized and purposes

commonly understood the architect

Rio de Janeiro, Brazil

can create freely, imaginatively and idiomatically.



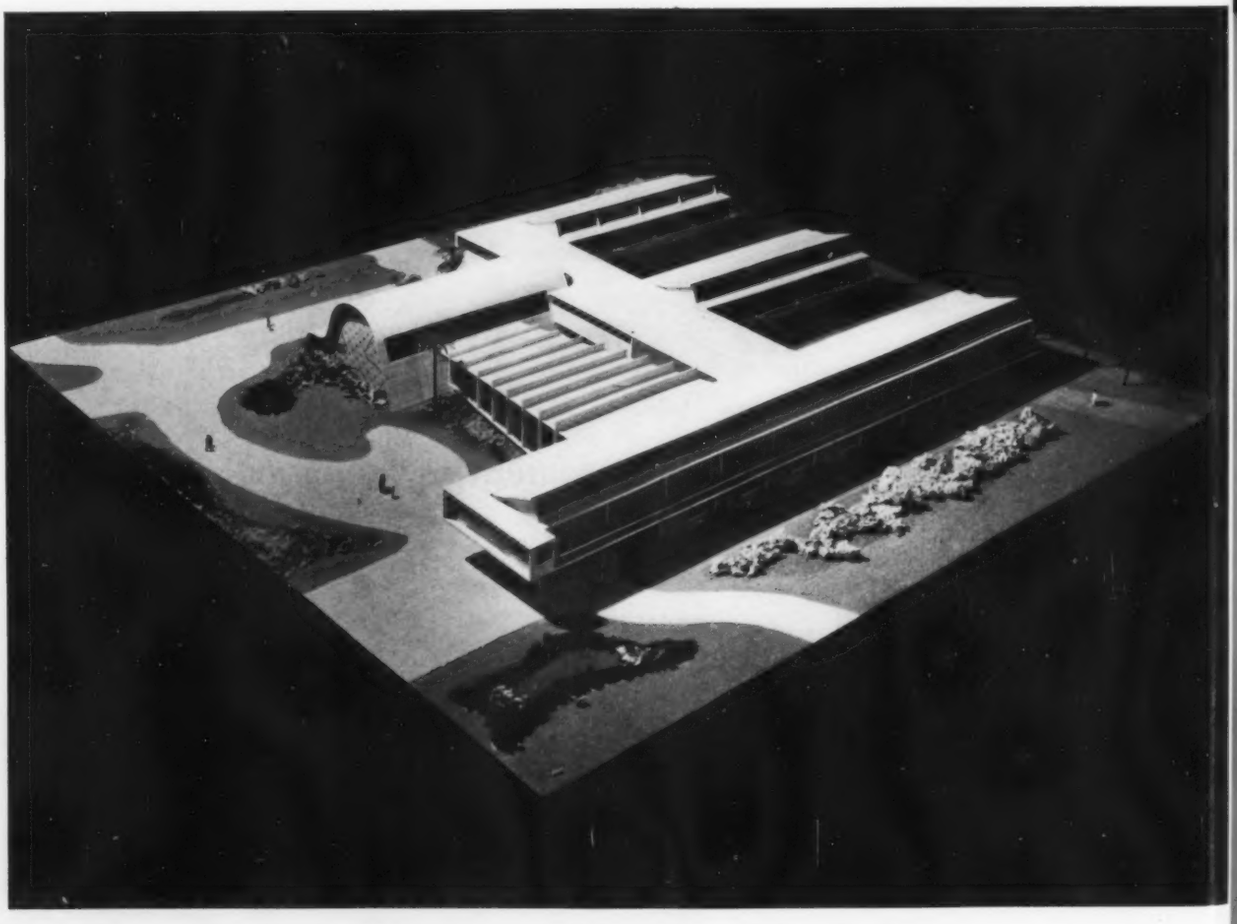
Manchester, Massachusetts

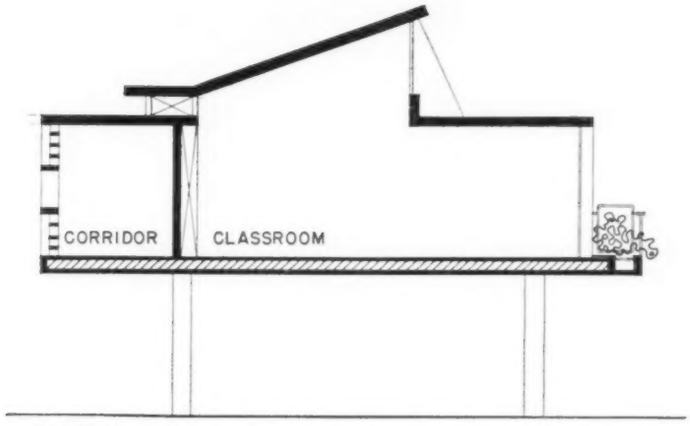
We are approaching

that goal in designing elementary schools.

Sweeny, Texas

WE PRESENT THESE THREE SCHOOLS, one in Brazil and two in widely separated parts of the United States, primarily as architecture. All three are elementary schools, and for this type of building for this age group there seems to be unanimity as to requirements in most of the countries of the Western world. While not every elementary school has a gymnasium and auditorium, the classroom — the fundamental element — is fairly constant. With minor exceptions so are curricula and spatial requirements, building techniques, equipment and furnishings. Everybody expects roughly the same results from the buildings. Here, then, are three very different resolutions of a common problem. Each is characteristic of the best of its region. Each has the character that results when a capable architect, recognizing fully the importance of such standardized concepts as classrooms, lighting, temperature control, ventilation and acoustics, gratefully and knowingly exploits them to produce architecture appropriate to its purpose, time and place. The first example, one of 140 schools of different types and sizes programmed for its municipality, is a **New Elementary School in Rio de Janeiro, Brazil. Eneas Silva, Architect.**





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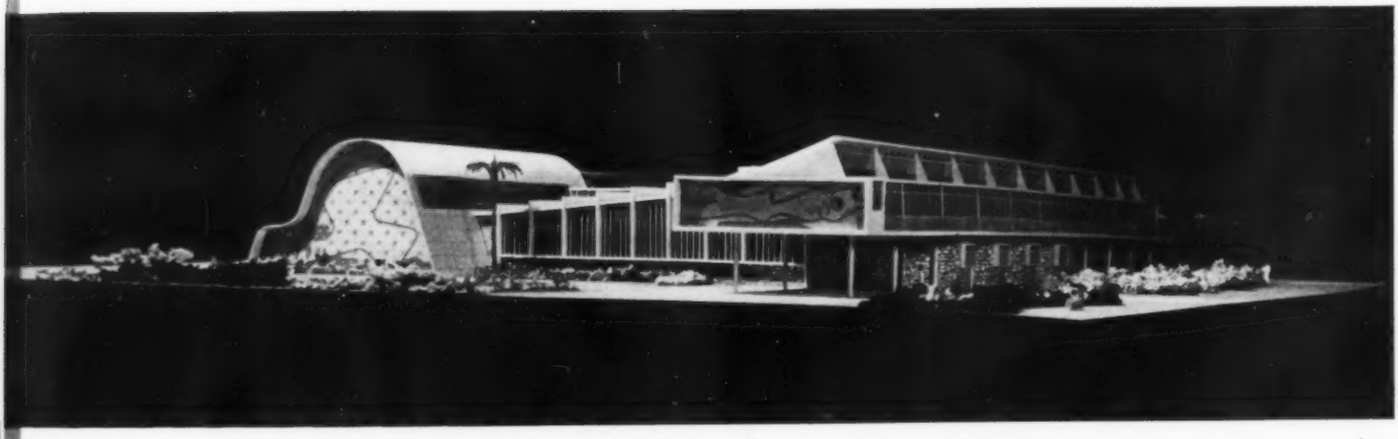
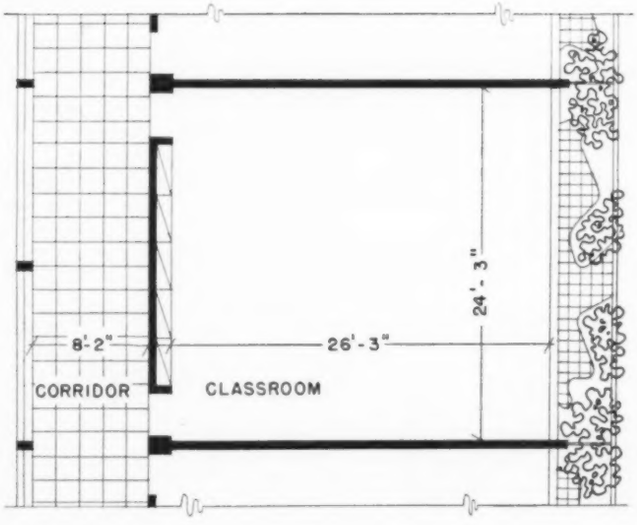
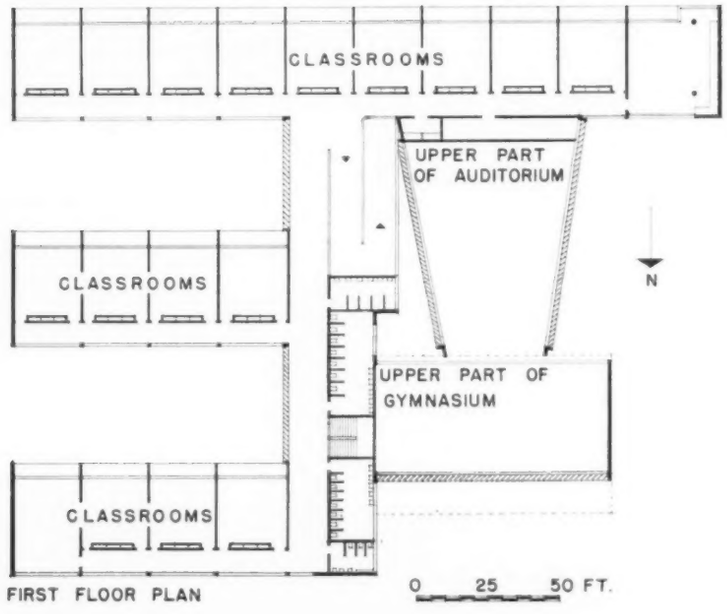


Jerry

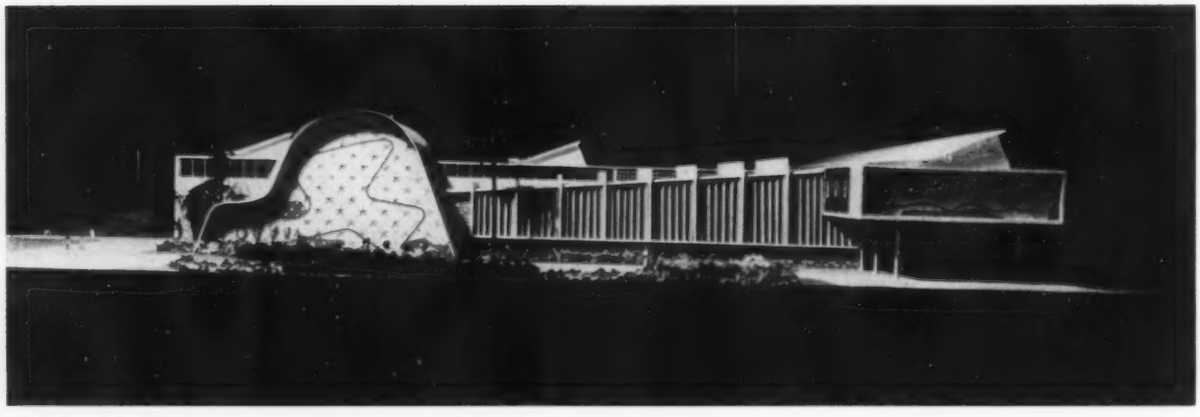


0 5 10 15 20FT.

Except for such slight differences as class size and area, and the fact that in Rio de Janeiro the hot sun comes from the north, this might well be the plan (and at top of page, the section) of a classroom in a school in the U.S.A. It is top-lit by a clerestory; its ceiling follows the roof line; it is oriented with terra-cotta-walled corridors on its north side to block the sun and glazed walls to admit cool south light, both direct and indirect. The two entrances are for the purpose of improving ventilation across the semi-open corridor. Raising the classroom wings provides cool ground-level patios for play on a somewhat limited site

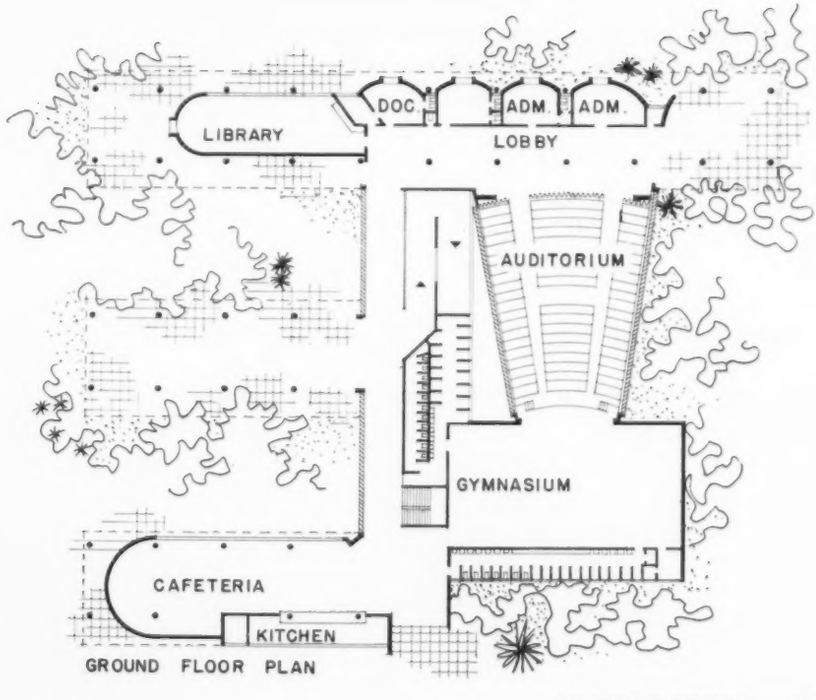


FIRST FLOOR PLAN



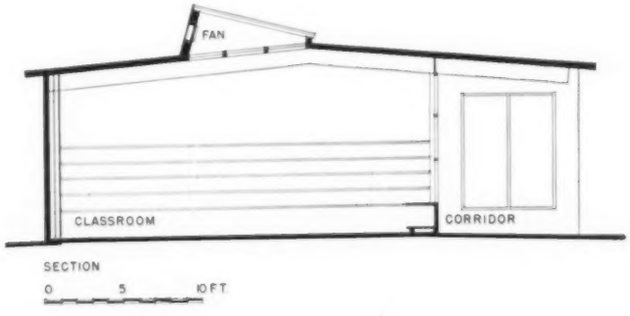
Jerry

Above, main facade; pivoting louvers or brise-soleils in auditorium wall provide interior light or darkness as desired, protect against direct sunlight

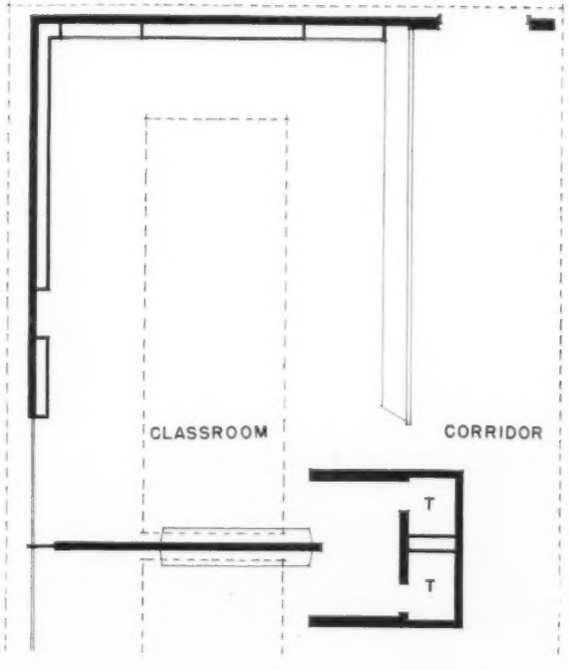


GROUND FLOOR PLAN

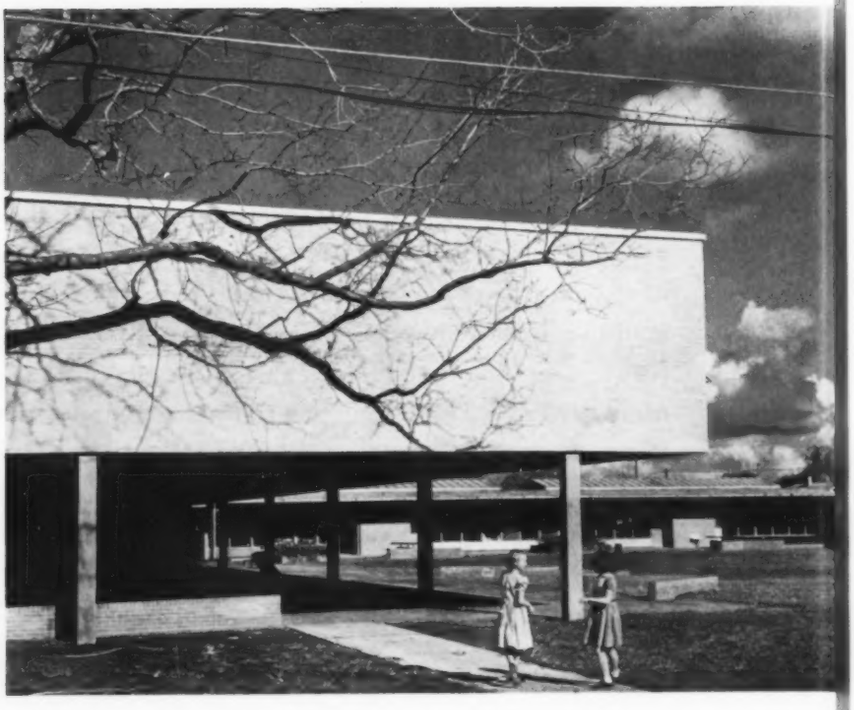
Elementary School, Sweeny, Texas. Architects: Donald Barthelme & Associates. Engineers: Structural, Walter P. Moore; Electrical, I. A. Naman; Mechanical, Charles Chennault. Sweeny is a typical small town of about 3000 people, whose school problems were almost exactly like those in every such town. On the available, none-too-large site was a 22-year-old brick building with three of its nine rooms in a floored-over auditorium. This was remodeled into administrative offices and a "common" room and two classroom wings were added, with space for a third. But to state the bare facts in this fashion, and merely to acknowledge the technical competence of the lighting, ventilation, structure, equipment, etc., would be to miss the essence of the architects' intent. Here the structure is quite visible, but every effort has been made to render it unobtrusive, to make the "architecture" of walls, voids and masses (or sculpture), or of planes and patterns (painting) disappear. The primary concern is to produce a series of environments for activities, to help contain and implement those activities without imposing on them an overly arbitrary architectural direction.

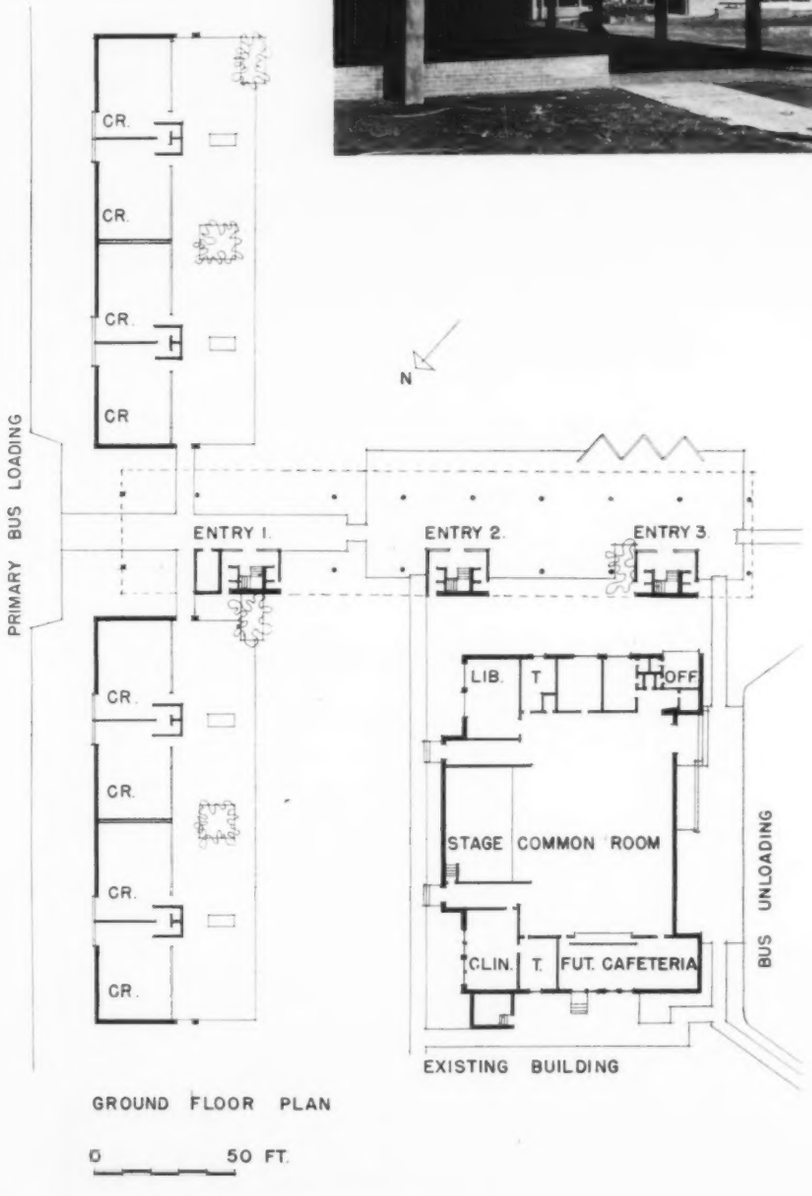


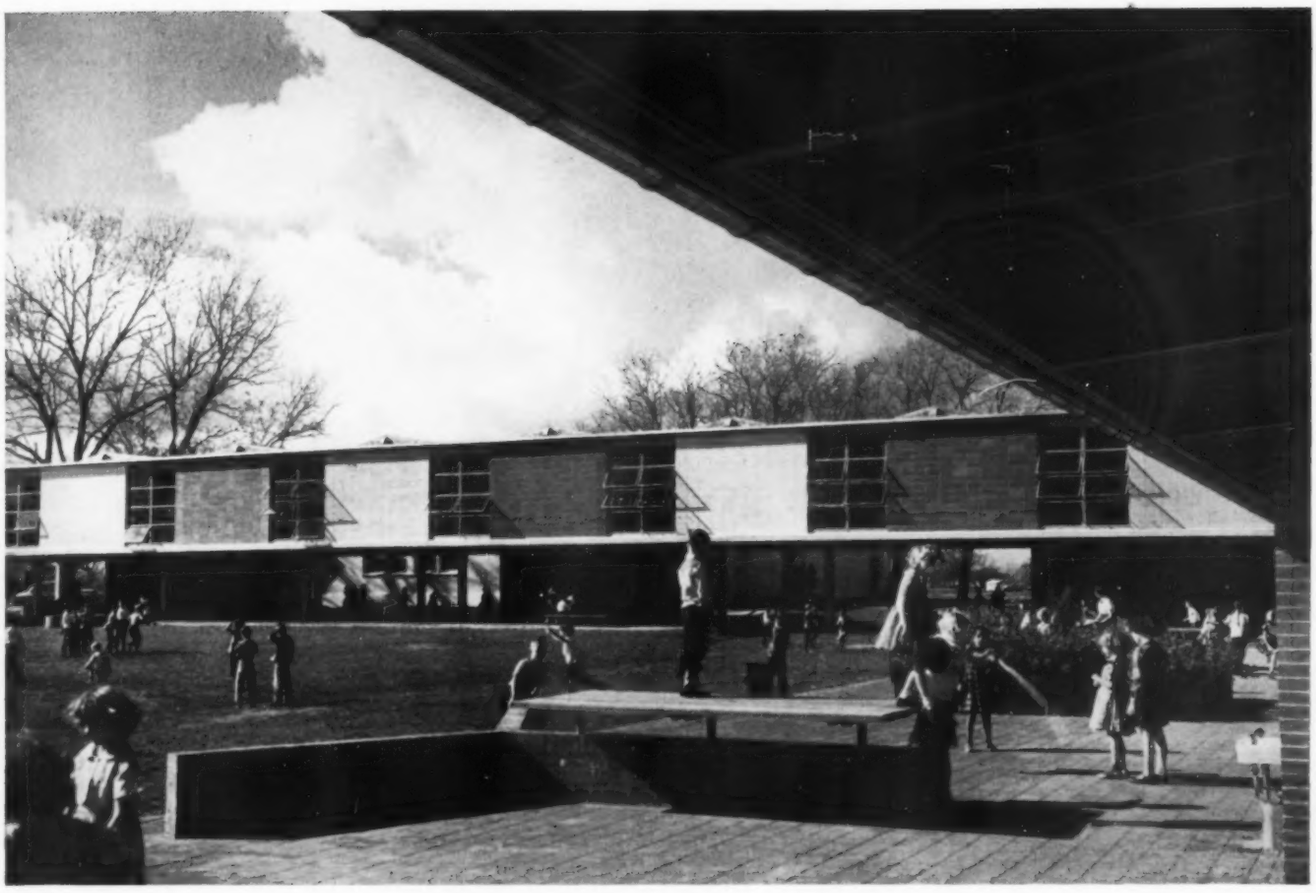
All classrooms are top-lit by skylights shielded with a variant of the Venetian blind. This permits free orientation of rooms, approaches the diffusion of natural daylight, is relatively unobtrusive. Artificial light sources are also unobtrusive. Walls are off-white both for reflectivity and to help make them less perceptible, against them float redwood wainscots which are tack space, conceal cupboards, shelving, etc.

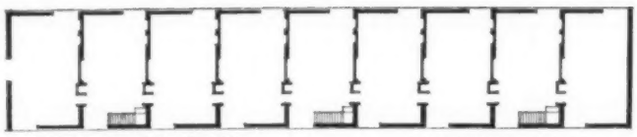


One present wing of the Sweeny, Texas, school is elevated, partly because the site was limited and outdoor space was thus preserved, partly for shaded play area. Under this wing are three entries with stairs and toilets, a bicycle rack, brick-paved space, a playful bridge over a surface drainage ditch, and a low serpentine wall for sitting. Plan shows location of future elevated wing, at northwest end of present buildings



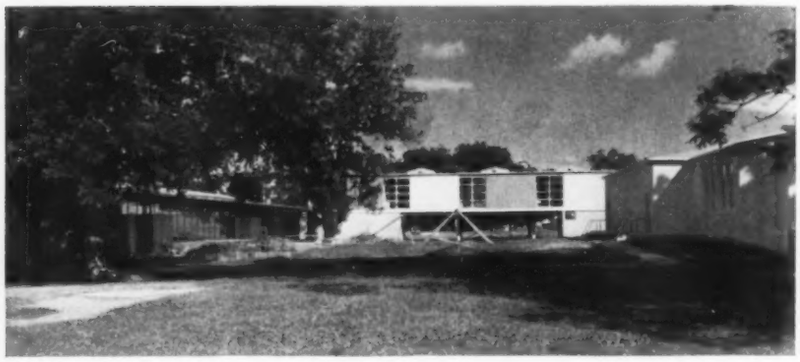






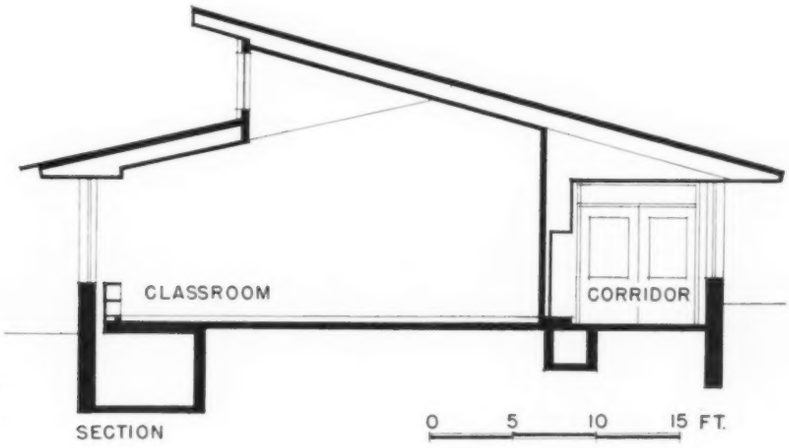
High wing has nine different-colored terra cotta panels separated by floor-to-ceiling windows which cross-ventilate and admit sunlight to one corner of each classroom all day. In low wing (foreground, above) structure is satisfyingly apparent; brick sitting-walls, tables, sand-boxes and planting boxes suggest separation of outdoor area for each classroom. Below the sash in this wing, walls are plastic panels in red, blue and yellow. Remodeled old building is just visible beneath high wing in photo below

Classrooms in Sweeny school, top and bottom of page, are similar in high and low wings (low wing rooms shown). Skylighting is even, diffused, baffled by fixed Venetian blind slats. Continuous fluorescent tubes are fastened to exposed bar joists

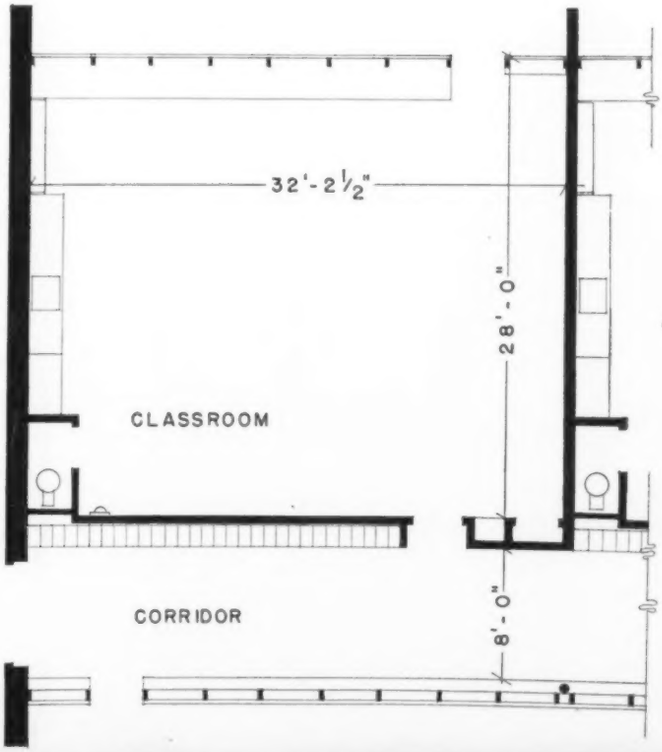


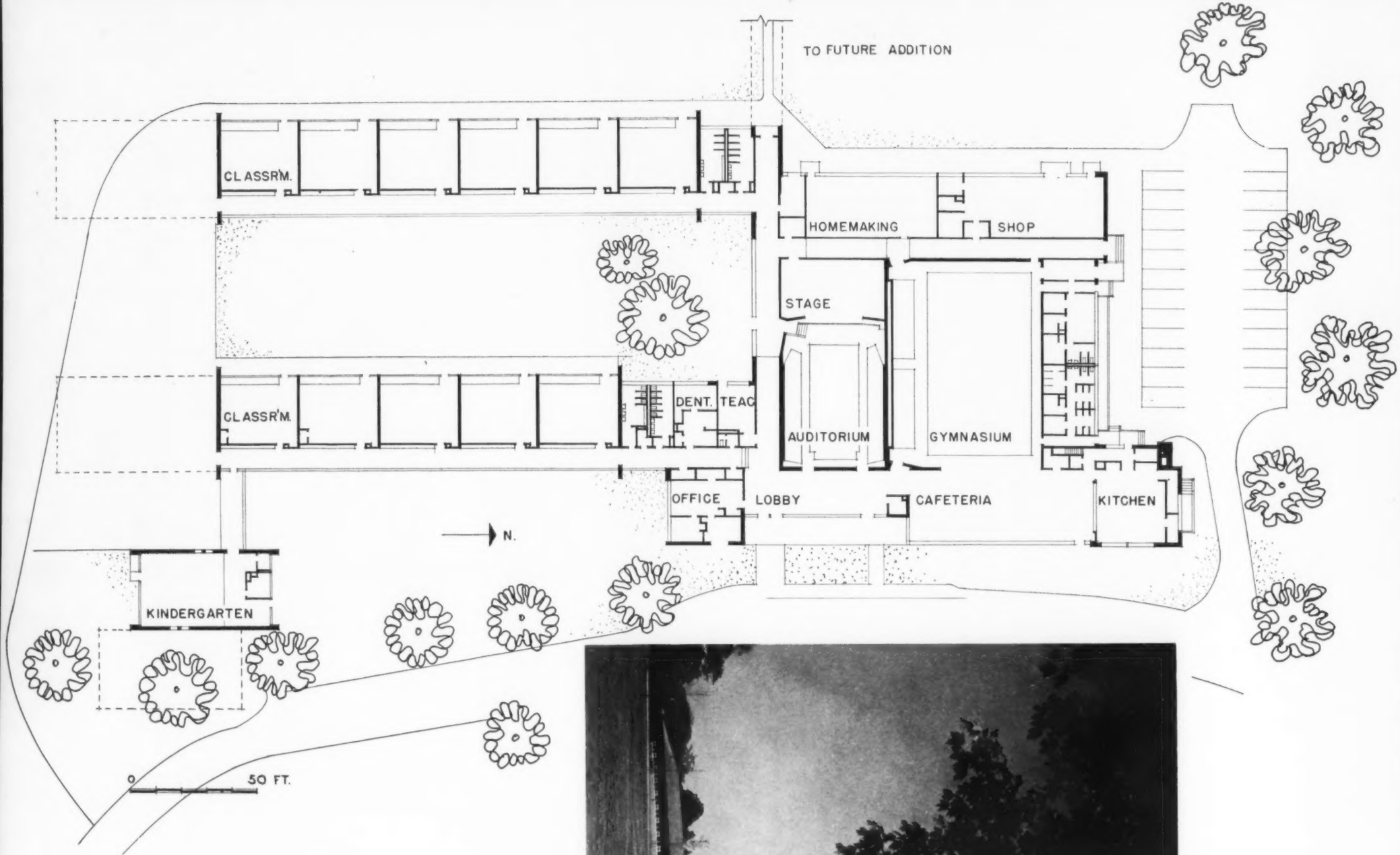
Left, bus waiting space in front of existing building was roofed, provides covered circulation between wings. Above, old building, right, virtually unchanged on exterior except for raising grade, simplifying roof, patching walls and painting a light pink

Manchester Memorial School, Manchester, Mass. Architects: Shepley Bulfinch Richardson and Abbot. Acoustics: Boldt, Beranek & Newman. Electrical and Daylighting Engineers: Thompson Engineering Co. Heating: R. D. Kimball Co. Landscape Architects: Shurcliff & Shurcliff. Quite conventional materials — chiefly brick, wood and steel — are combined with advanced engineering techniques and equipment to produce a school building which is both in tune with its intimate New England setting and contemporary in feeling. Classrooms face west, which might be dubious practice elsewhere but suits the Massachusetts climate; orientation also permits classrooms to face away from the entrance drive and toward existing town playgrounds. The building, shown in detail on following pages, also serves for municipal functions. It has a noteworthy variety of interest, ranging from the gay kindergarten at one end to more imposing semi-public areas at the other, without sacrificing unity.



Classroom clerestory cross section with interior and exterior baffles was developed from precision daylighting studies. Upper walls and baffles, but not ceiling, are acoustically treated. Floors are radiant heated slabs; central ventilating system has individual room controls

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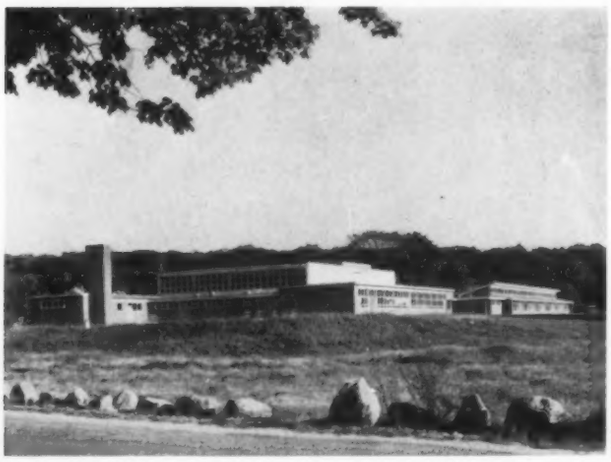
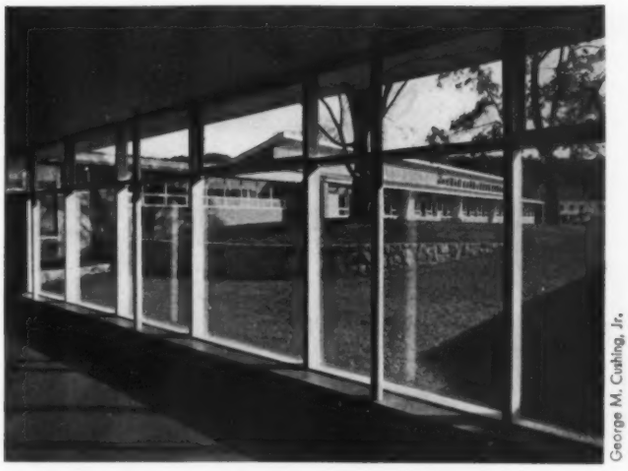


Cushing

Harvey



George M. Cushing, Jr.

Robert D. Harvey

THREE SCHOOLS: MASSACHUSETTS

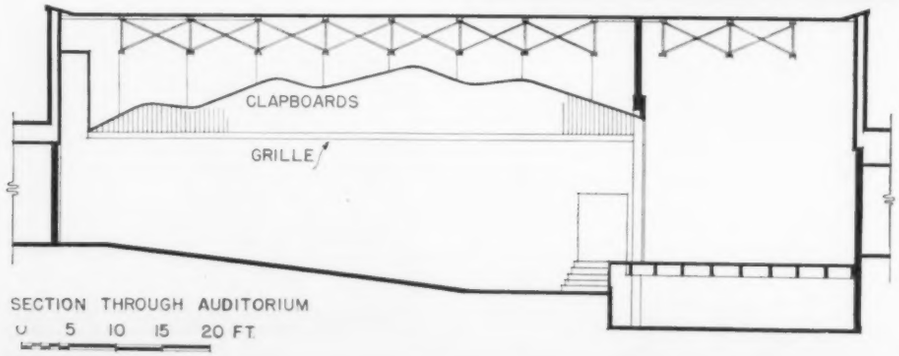
Photos: above, entrance faces a side street. Right, top to bottom: view from southwest; detail of main entrance; auditorium corridor; main lobby. In plan, areas for noisy activities and for public use are grouped to the north; classroom wings can be expanded southward. Incorporating two slight changes of level in plan reduced site work and saved several fine trees. Gymnasium, separated from 350-seat auditorium by double masonry wall (soundproof), has folding doors opening to cafeteria, making space for seating 1000 for town meetings. Entire school, for 360 pupils, cost slightly more than $810,000; has 48,000 sq ft at $16.88. Cost per student was $2250.00

Cushing

Harvey

Above, looking from court to auditorium; right and below, auditorium interior. Here the form, determined by acoustical needs, conceals the structure. In gymnasium (not shown) steel trusses are exposed

Cushing



SECTION THROUGH AUDITORIUM

0 5 10 15 20 FT

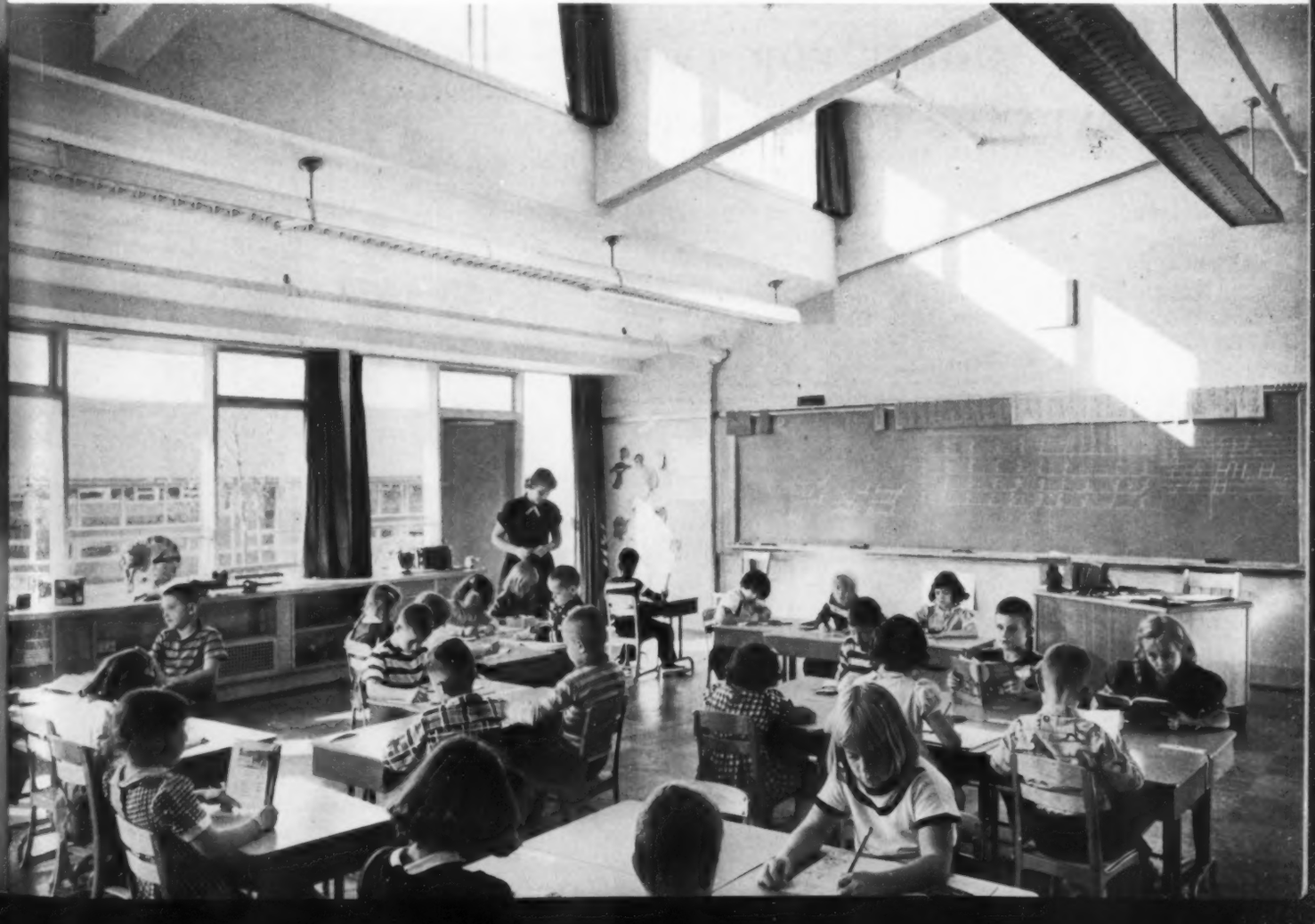
Left and below, kindergarten, which can be doubled in size. Structural elements, colorfully treated, supply the visual interest

Cushing

Right, corridors are to east of each classroom wing. Classrooms (below) face west — desirable in this climate — and were carefully studied with respect to lighting, acoustics, heating, ventilation (see text)

R. D. Harvey

George M. Cushing, Jr.

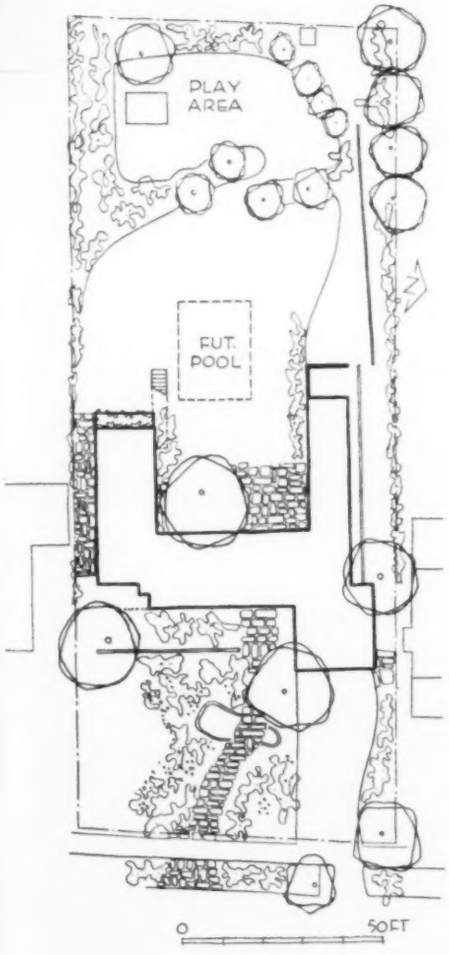


Julius Shulman

HOUSE FOR TWO EXPANDS FOR GUESTS

Residence of Mr. and Mrs. Maurice L. Heller
Beverly Hills, California

Richard J. Neutra, Architect



THIS SOUTHERN CALIFORNIA HOUSE was planned for a couple whose children were already married and had youngsters of their own. The house was not to be a large one, since it would be occupied most of the time by only two persons; it must be so designed, however, that visiting children and grandchildren could be accommodated for fairly long visits both comfortably and with a minimum of friction between generations. What the owners wanted, in other words, was a house which could be expanded or contracted at will. They also very much wanted as much privacy as could be achieved on a narrow lot closely hemmed in by neighboring houses.

The solution was a U-shaped house straddling the lot and enclosing a patio. A two-story bedroom wing provides a guest suite (plan on page 150) which can be closed off when not occupied; the maid's room and bath, at one end of the northern wing, can be similarly shut off when not in use — or could be pressed into service as an extra guest room if required (it has its own small patio and entrance). The rest of the house is not too large for a family of two, and is easily cared for.

HOUSE FOR TWO EXPANDS FOR GUESTS

Remarkable privacy was secured for every part of both house and gardens. The front is protected from the street by trees and bushes through which winds a stepped walk leading to the main entrance. Planting and high windows shelter the two side wings, which in turn protect the patio. A broad lawn edged by planting stretches from the flagstone terrace outside the living room wing all the way to the rear of the lot where the play area is almost out of sight and sound.

The location of the play area is typical of the care with which the house and grounds were zoned to keep one age group from disturbing another. The second

floor guest suite can be reached directly from the lawn, and the children's bunk room is over the utility room at the opposite end of the bedroom wing from the master suite. Living room and patio are far enough from the bunk room to permit late entertaining without risk of disturbing visiting grandchildren.

Just as much care went into simplifying housekeeping in the main part of the house. Much of the furniture is built in. The kitchen is all-electric, compact and planned in close cooperation with the owners; a door connects it with the garage putting the family car within a few feet of kitchen counters.

Julius Shulman

Western wall of living-dining wing is a series of floor-to-ceiling glass panels, some sliding to open area to flagstone terrace and patio. Dining room table, designed by architect, can be lowered in few seconds to coffee-table height (below) to incorporate dining area into living room. Built-in settee on east wall of living room is below bank of high windows with mitered glass corner planned for view of tall old fir tree. Fireplace is Arizona flagstone, built-in buffet and other furniture are birch. Large mirror above buffet brings garden view to everyone at dining table

Master bedroom achieves maximum privacy by solid wall on patio side, high windows on opposite; end wall facing rear lawn, however, is glass from floor to ceiling. All furniture is built in. Owner's fold-down drafting table (bottom of page) is on second floor, at door to roof terrace

Julius Shulman

Above: living-dining area is undivided, and separated from patio only by glass walls; floors are cork, ceiling 1 by 4 T & G. Below: upper-floor guest suite is connected with patio by outdoor stairs with open risers, protective railings

HOUSE FOR TWO EXPANDS FOR GUESTS

Julius Shulman

Second-floor guest suite overlooks patio except for children's bunk room-storage room, which is at far end of wing, above utility room. Porch is partly glassed in, partly screened; it doubles as bad weather playroom and guest sitting room. Stair landing (above) is enlivened by translucent window framing gnarled vine which is silhouetted at night by exterior

THE THREE LAMPS OF MODERN ARCHITECTURE

*JOSEPH V. HUDNUT**

III. | THE LAMP OF DEMOCRACY

WHEN THE SCIENTIFIC THEORY of evolution won acceptance in the nineteenth century, it was already identified with a philosophical doctrine of progress. The origin and development of species was postulated not merely as a process of change but as one of change for the better, the consequence of an impulse existing in the universe, not for creating merely but for upbuilding and improvement. Nature is not a mechanism but a continuity of organic variations in which new species of living things come into being in an ascending scale of excellence; and whether this progressive creativity is guided, as Aristotle believed, by some purposeful and final cause or whether, as Darwin suggests, it proceeds from a wasteful and cruel struggle for existence, reality is governed nevertheless by a law of organic development.

Comte was one of the first to suggest that this law might govern not the evolution of organic forms in nature merely but also the evolution of cultural institutions. Society also progresses, and the good of society is being gradually achieved either by the operation of some ultimate and universal force or by painful adaptations to ever-changing circumstance. From this basis Spencer developed his concept of society as itself an organism. Society, he tells us, has organs — organs of nutrition, circulation, co-ordination, and reproduction — very much like those of the men who are its components; these organs develop, becoming more complex as they acquire an increasing mutual dependence; and this development, from family to clan, from clan to tribe and state and nation, is accompanied by a greater and greater integration and perfection of operation. Religion, economic life, science, education, and art — every aspect of social phenomena — are thus co-ordi-

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** Last of three lectures at the College of Architecture and Design, University of Michigan.* *Copyright 1952, University of Michigan Press*

nated into the complex social organisms which today, like a vast mosaic, cover the surface of the globe.

The theory of Spencer gained a wide currency among those architects confident of progress in human affairs, who, like Louis Sullivan, had already conceived buildings as organic structures comparable to the structures of nature. Having discovered the secret of architectural beauty in nature's supreme artistry and being persuaded that architectures are also elements in civilizations, they found it not difficult to believe that the laws of architecture might be integral both to nature and civilizations, since these are parts of one and the same thing. If societies are living organisms, so are buildings, and buildings, which are significant of societies, ought to be in harmony with the phenomena of societies — among these phenomena, organic order. Thus, the esthetic doctrine, *organic expression*, was widened to include not only a natural consistency of form to structure in buildings but a consistency of form and structure to social purpose and relationship.

This theory gained a rapid currency since it offered a philosophical explanation of a popular prejudice already firmly established. The romanticists in the period following the French Revolution had taught us to recognize the spiritual splendor of thirteenth-century France which is built into Amiens and the degradation of ancient Rome built into the Thermae of Caracalla. If we are sometimes unaware that these judgments rest upon our own notions of right and wrong, and, of course, upon our interpretation of history and event, that innocence has not shattered the initial promise. Nothing today could persuade us of grandeur in the new architecture of Moscow or of dignity in the gilded vista of Ochre Court: not that these do not express social ideas but rather that they express ideas unworthy of expression.

The theory of organic expression did not change a habit of judgment so congenial to popular prejudice, but it did give it new vitality and direction. The relation between a society and its architecture, a relation which had received a romantic and sometimes a mystical interpretation, was now made a theme of social philosophy. Into the doctrine of naturalism which identified architectures with the single great organism of the universe there was now intermingled the doctrine that identified architectures with social law and social evolution. Architectures were to stand in society not as the costumes or stage settings which might clarify or intensify the action on the stage or as the magical embodiments of the spirit of an era, but as actual participants in social progressions. Society does not merely environ and condition architecture. Architecture is as much a part of the social organism as law, religion, and the material processes of manufacture and consumption.

If then we desire an architecture which, participating in the society of our day, will lend its strength to vitality and truth in society, we must consciously shape our buildings to accord with whatever principle of progress and betterment animates our society. That principle is democracy. What is needed, said Louis Sullivan, "is an art of and for democracy, an art of and for the American people of our own time" — and he noted, incidentally, that the capital of democracy is Chicago. All other architectures of his day he found to be "viciously undemocratic," since they stood apart, in classic snobbishness, not only from the stubborn facts of steel construction but from the usages of a democratic way of life. Architecture being a manifestation of a specific character in society and the practice of architecture being essentially a social service, the architects who persisted in the traditions of the Renaissance could not be regarded as good citizens.

An American architect, in other words, must lend his art, willy-nilly, to democratic influence and process. He is to participate in democratic thought and action and subordinate his genius to the expression of the democratic ideals. Whatever individuality of idea and feeling may be his is to be made consistent with this harmonizing faith; for although the dignity and worth of the individual are everywhere essentials in American democracy and although the highest possible expression of the individual is one of its ideals, nevertheless there is a certain principle, the basis of our social organism, which is also seeking expression; and an architect's utmost freedom of expression is not to be extended to include, for example, either the aristocratic formulae of Palladio or the hierarchal traditions of Amiens. "Arrange your architecture for democracy," said Louis Sullivan.

To assist the evaluation of this principle, I shall now propose three guides to architectural criticism. I propose these, not as dogma or even as principles, but as yardsticks which at this moment appear to me to be valid. They are, as will be seen, somewhat negative in character; but I have already affirmed, in the two previous papers, the positive basis of my creed. I am concerned at this moment with the defense of my creed against a concept which, however salutary in its destruction of old idols, has too often defeated the unique ministry of architecture — even in a democratic society.

Expression in architecture is not description. The appearances of buildings often exhibit their functions, and they may do so as clearly as if these functions had been described in words upon their façades. The characteristic shapes of classrooms, assembly halls, and gymnasia tell us, for example, that aggregations of these are schools. No guidebook is required to tell us that a marquee covered with neon lights announces a motion-picture theater. Our skyscrapers confess their true characters by removing their clothings; and we have unmasked even our railroad stations. These are descriptions. They are means whereby the characters of buildings are explicitly made known.

It is possible to call such a consistency of appearance and purpose expression. Certain facts are revealed, certain associations insisted upon, and in that way "expressed" in much the same way that a Martini cocktail expresses gin and vermouth. Nevertheless, I hope, at least at this moment, to exclude such factual

(*Continued on page 246*)

Postscript to "THE THREE LAMPS OF MODERN ARCHITECTURE"

By JOSEPH V. HUDNUT

We have invented a new style of architecture. The vocabulary of that new architecture and the principles of its design have been determined for us, in part by a philosophy of history, in part by a hypothesis of science, and in part by a religion of society. The architect, willy-nilly, must practice his art within limits set by these ideas. We are called upon to express our time, our technologies, our democracy — no one of which, except by association, can be expressed by the initiative and conscious will of an architect. Our era is in our buildings because our buildings are in our era; our technologies are in our buildings because we cannot do without them; and our democracy, so far as it exists, is there by the same involition. And while we follow the diverse and intriguing paths which these lamps illumine we turn away from that broad avenue, unique to our practice and our tradition, which leads to a vital and eloquent expression. I mean, of course, the avenue to form.

I do not suggest that new inventions and new modes of planning may not be elements of form, or that a frank confession of structural fact may not be as important to form as an abstraction; nor would I prohibit a democratic simplicity and uniformity whenever such qualities invade the mood of a designer. I mean that, considered as elements of expression, these are of value only as they are also elements of form. Concrete, aluminum, plate glass, and mechanical contrivance can participate in a formal order; steel and concrete construction have each its specific geometry in no essential way hostile either to proportion or rhythmical disposition; and there are few democratic austerities which could not be made to give emphasis and new value to form. But we allow these, the materials of our art, to subdue its spirit. They imprison us; hold us too closely to the stream of our interests, our anticipations, and our memories; stand between us and the free exercise of our unique genius.

Scientific and philosophical concepts are intermingled with artistic intention in every important work of architecture. In the noblest masterpieces — in the Parthenon, in the Dome of Florence, in *Notre Dame de Paris* — these are combined and fused. There are always in buildings cognitive circumstances, facts made known by the intelligence, which demand our attention or invite our research and analysis: the relation to time and climate, to the energies of the structural pattern, to the utilities in the social scheme. Always the existence of these and their natures can be, in part, demonstrated. They can be defined and given each an actuality independent of the others. There are also the reshapings of the imagination, the felt qualities imposed on stone and steel, on column, arch, and walls of glass, avenues of truth not dependent upon reasoning or understanding. Architecture is compounded of these two kinds of knowledge, entangled in a common fabric. Each may be known independently, but they exist together.

Benedetto Croce has shown us how these two kinds of knowledge, factual or cognitive knowledge and that more immediate knowledge which he calls intuitive, may be mingled not in buildings only but in all things made by man. Only in the most simple aspects of art — in a musical motive "tender" or "energetic," in the painting of moonlight on a river — is our awareness of that which the artist meant to express free from the complexities of artifice in which it is embodied. Alberti said that he could "contrive in his imagination the perfect form of a building entirely separate from matter," but even he had no formulae, other than those afforded by the techniques of construction, to convey his fantasy to his fellowmen. Idea and feeling must come to us in architecture, through the screen of material intricacies.

To this evident circumstance Croce adds an observation infinitely more important and conclusive to the cause of architecture. When we apprehend a building as a work of art — that is to say, as an expressive object — the factual or logical concepts which are mingled and fused with its expressive qualities cease to exist. In so far as they are mingled and fused they have lost all independence and autonomy. "They have been concepts, but have now become single elements of intuition." And when, on the other hand, we apprehend a building as a scientific or logical work it remains scientific or logical even though it is overflowing with ornament and harmonious orderings.

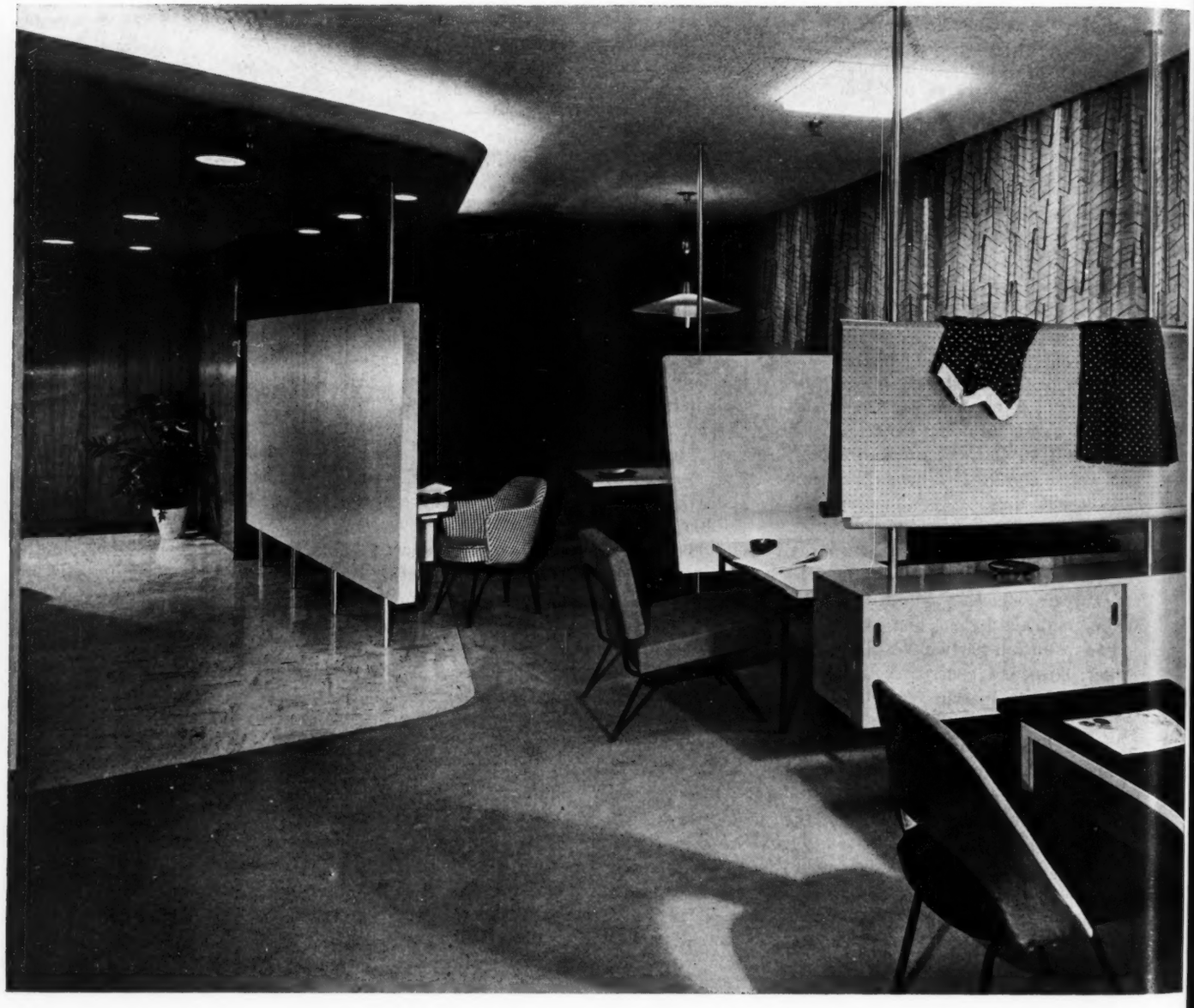
Somewhat to my surprise I have found that my own experience seems to confirm the observation of Croce. I can be aware of technological circumstance and artistic fashionings existing together in a building, but I cannot hold the building in my mind as a scientific object and at the same time hold it there as a work of art. If it exists as scientific object (or historical or social document) the artistic elements become mere accessories to cognitive fact; if it exists as a work of art, the elements created by science must either exist also as elements of the artistic form or by some means be erased from my consciousness. Whether thus erased or thus merged into expressive pattern they cease to exist as fact and science.

Have we not here a guidepost which points the path our architecture ought to follow? Our materials, our technological devices, our rational (or at least reasoned) preferences in character and symbol can be so reshaped and rearranged — and without violence to the logic peculiar to each — as to become elements of form: of a form, concerned not with academic law and precedent, but with the free translation of idea and feeling beyond that possible to structures shaped by necessity.

It is not my desire that buildings should cease to be progressive or rational or, if people are pleased to give them such an attribute, democratic. But I think it is a great pity that we should place such values on these characteristics as to make them the measures of excellence in design. I would have the architect free, so far as that may be practicable, to command in the name of form every detail of his building, and, if I had my way, he should be wholly uninhibited by dogma imposed upon his art by philosophies alien to architecture.

It is my wish not to defeat modern architecture or stay its triumphant advance, but to exalt modern architecture by bringing it within the channel of a greater tradition.

EASTERN SHOWROOM FOR CALIFORNIA MAKER

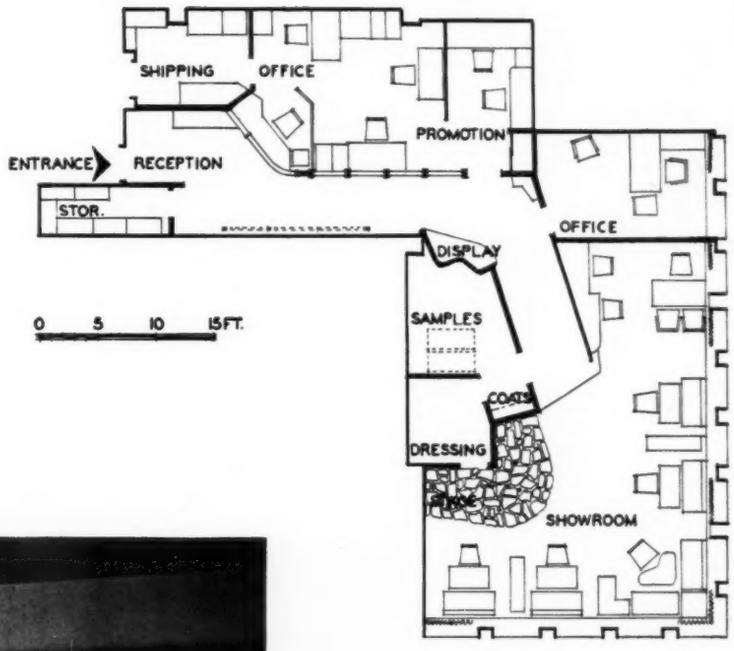


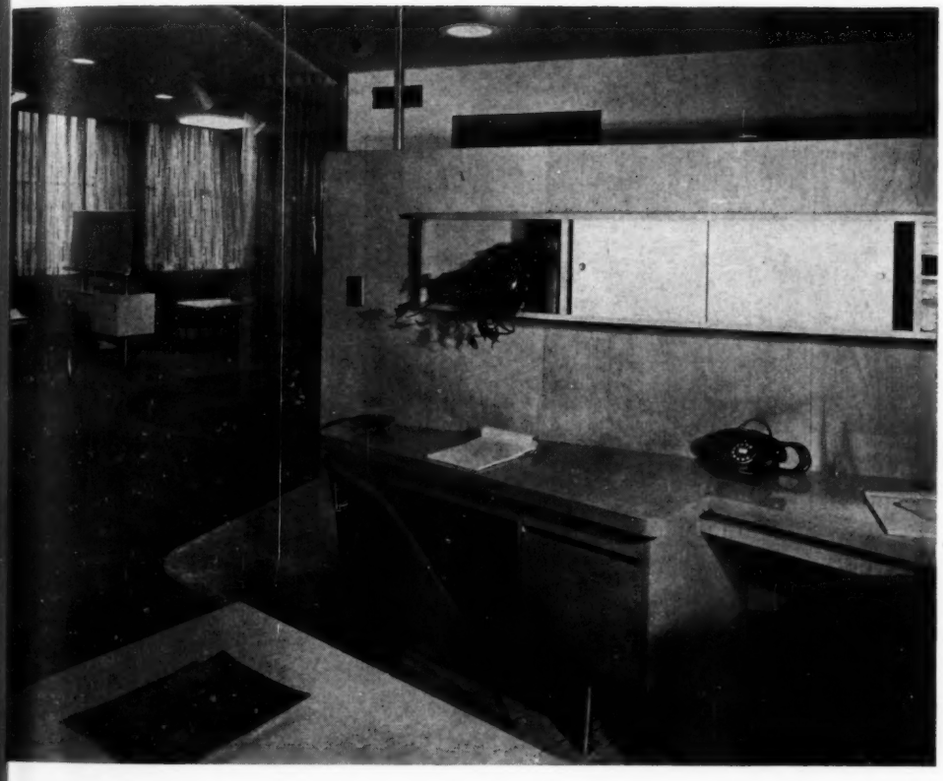
The reception area, above left, is defined by the lighting cove and the floor treatment; is separated from the sales area proper by a wood screen against the back of which, right page, are built two sales desks of natural white birch with plastic work surface

Gerhard E. Karplus

Architect

OF SWIMMING SUITS





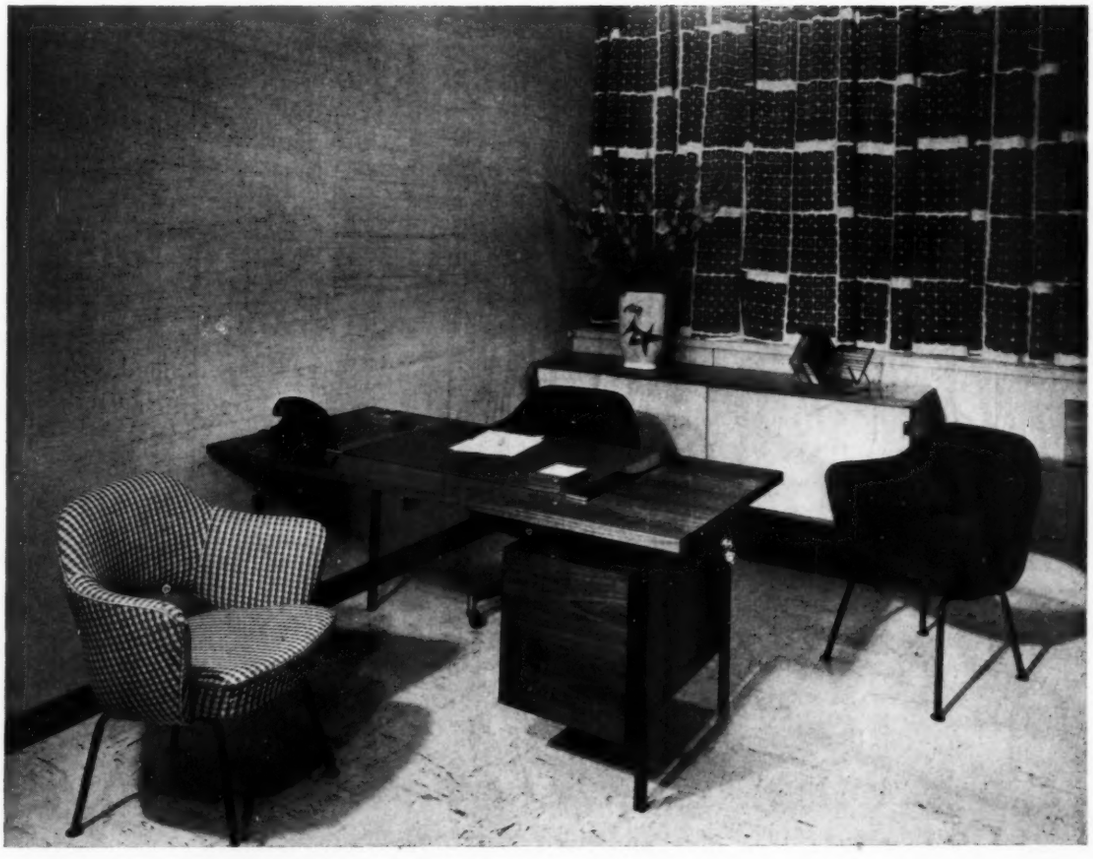
Ben Schnall

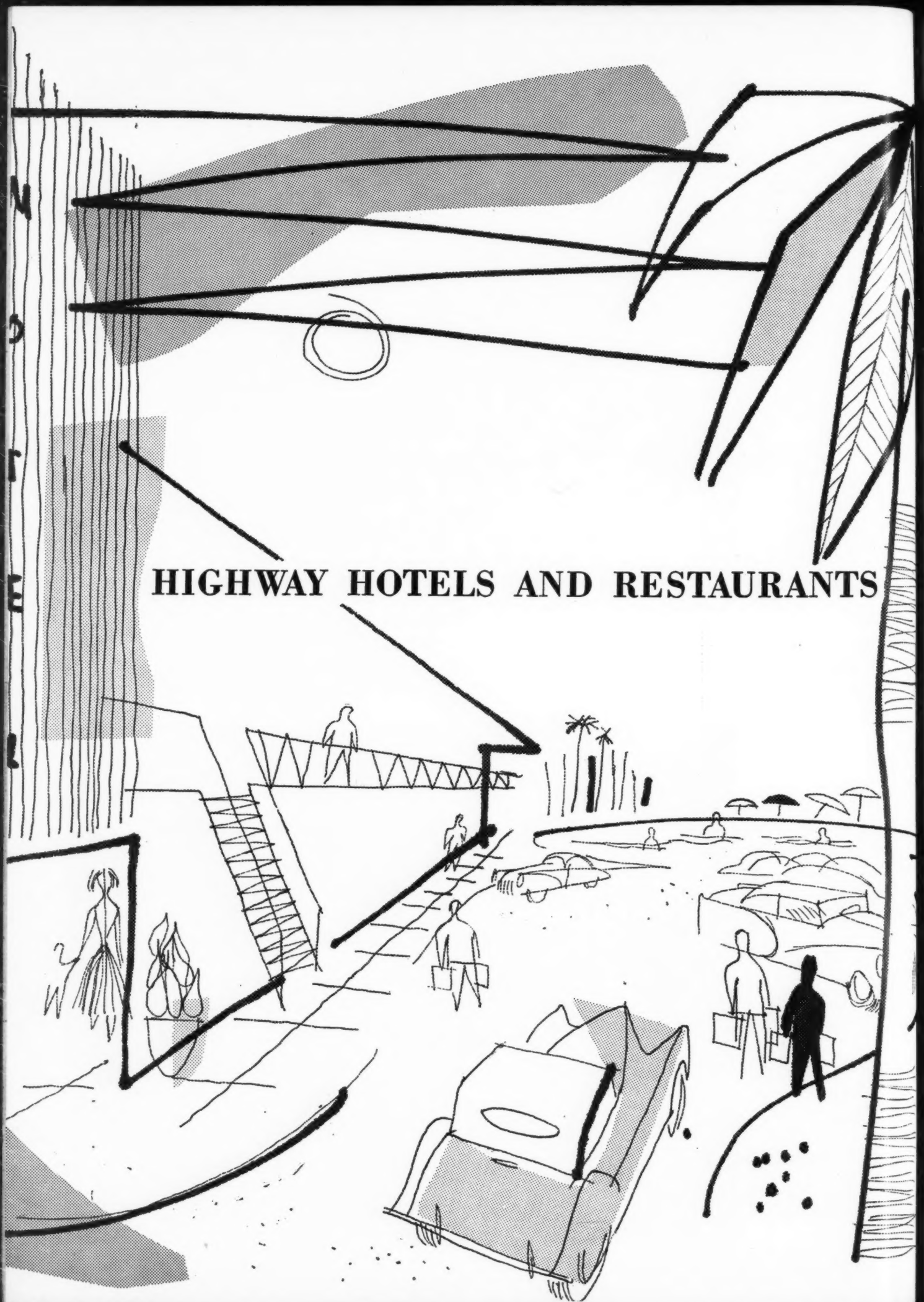
THE ARCHITECT for this Broadway showroom had two main problems to tackle in designing the interiors pictured. The owner, Rose Marie Reid, a California manufacturer of beachwear, wanted a large showroom containing five sales booths and desks for two salesmen as well as the necessary ancillary spaces; a private office; a publicity department; and a shipping room — all incorporated into a relatively small area of irregular shape. Another requirement was to capture as much as possible of the light and colorful atmosphere attributed to California. These problems were met by a rather free plan; the attempt to achieve as much of a sense of openness as possible by the use of screens free of floor and ceiling and the selection of net and semi-transparent hangings; and by employing a wide range of delicate colors in high key.

Typical dividers for sales booths consist of an upper display easel formed of perforated metal painted light gray and a lower cabinet for sample storage built of white birch in natural finish. Tables and chairs are mostly of stock design, except for the corner units, which are architect designed

Note the platform for modelling, above and left, which is paved in vari-colored flagstone. Typical window hangings, left and above, are a lightweight black print on white, and are suspended from a continuous track in the recess between ceiling and piers

Ben Schnall





HIGHWAY HOTELS AND RESTAURANTS

ary

For its 200th consecutive Building Types Study, ARCHITECTURAL RECORD has collaborated with the editors of *Hotel Management* magazine to provide a client's-eye view of the changing conditions encountered in the motel field by owners and operators throughout the country.

1. Richard's Drive-In Restaurant, Boston, Mass.
2. O'Boyle's Drive-In Restaurant, Bucks Co., Pa.
3. Red Horse Motor Inn, Dayton, Ohio
4. Motel for Max Alpert, Richmond, Va.
5. Casa Mañana Motel, San Antonio, Tex.
6. Springer Motel, New Orleans, La.
7. El Patio Motel, Denver, Colo.
8. The Shalimar Motel, Miami, Fla.
9. Juno Ranch Motel, Juno Beach, Fla.
10. Caribe Motel, Miami Beach, Fla.
11. Terrace Motor Motel, Austin, Tex.
12. Motel for Charles C. Wilmore, Denver, Colo.
13. Jack Tar Motel, Galveston, Tex.
14. Town House Motor Motel, New Orleans, La.

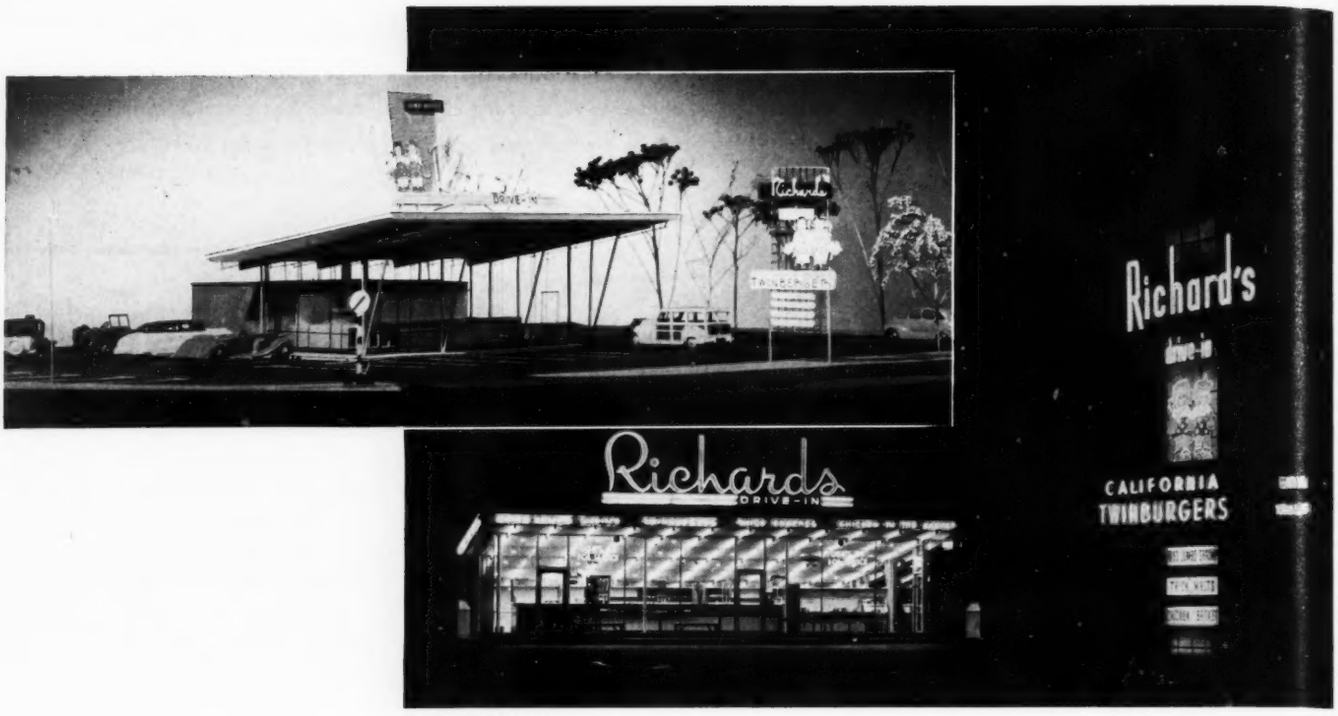
THE NAME "GOLD COAST" has been applied to many locales, and for as many social and economic reasons through the years. The current version in Miami Beach, however, is a fashionable strip of land bristling with motels. The progeny of the stripped-down cabins of the depression years have acquired an elaborate respectability and moved up into the ranks of Big Business — in volume, capital investment and net profits. Florida's motel-building boom, for example, is reportedly spurred on by new licenses issued at the rate of three a day, and with no signs of tapering off. Indications are that a similar, though

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NUMBER ®

200

more moderate, boom is taking place in many other parts of the country. United Motor Courts, an industry association, has stated that twenty motor courts a day are being completed this year as compared with eleven a day in 1952. Today there are some 50,000 highway hotels representing a six billion dollar investment. All this activity has probably been brought about by reports of the phenomenal success of some of the older motels, and the attraction of a constantly widening range of clientele. The capture of a good percentage of the business and commercial traveler trade has been a tremendous boost to offset the traditional off-season slack periods. It was estimated that more than 86 per cent of all travelers in the U. S. went by car in 1952, and this year, some guessers predict that about 40,000,000 people, two-thirds of all those traveling by car, will stop at motels.

A pertinent point in the midst of these facts and speculations is the marked change in character of most of the new motels — both in design and operation — which should create a bumper business for architects in the field. Competition and public demand have forced motel owners to become more conscious of the high sales value of good clean design and planned efficiency. Services and extra features have been increased in some instances to the point that there is little to distinguish a motel from a hotel except its horizontal structure and the identifying sign. There is at least one case where a good sized suburban hotel, regarded as one of the white elephants left over from the late nineteen-twenties, has been refurbished a bit, equipped with a big motel sign, and currently enjoys a thriving tourist business. A number of hotel operators, conscious of the trend, have flanked their establishments with motel units which get hotel service.



George M. Cushing, Jr.

A drive-in type of restaurant is favored by some motel operators to increase revenue. This particular example is a prototype design for Richard's Drive-In Restaurant chain by William Riseman Associates, Architects. The basic model (inset photo) will be adapted for 18 units in the Midwest and East. The photo is of one in Boston, Mass.

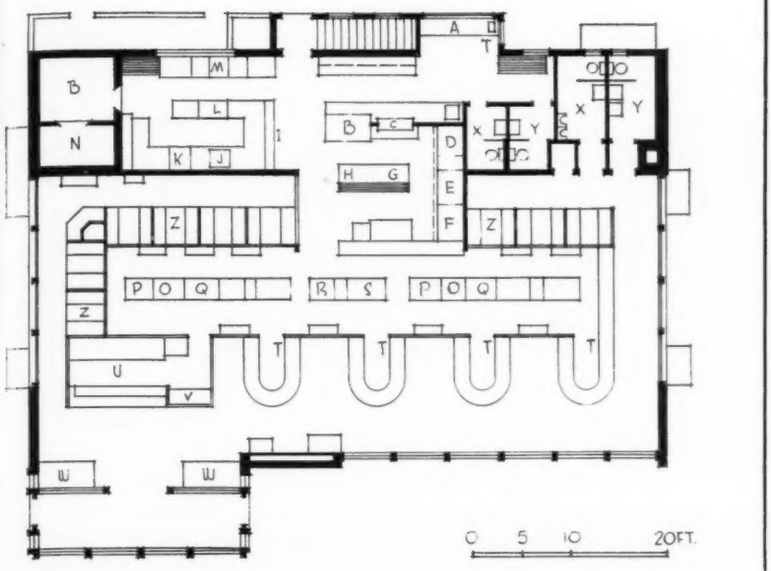
1 RICHARD'S DRIVE-IN RESTAURANT, BOSTON, MASS.

THE PLANNING ASPECTS of this changing concept for a motel will require the services of many more specialized professions than was the case a short while ago, when most motor courts were planned and operated by a husband-and-wife team of manager-owners. The extensive planning data for motels published in the March 1950 issue of ARCHITECTURAL RECORD are generally still quite valid as desirable factors. However, the success of many motels in apparently unfavorable locations has led to a review of a number of the points.

CONSIDERATIONS ON SITE PLANNING AND SELECTION

In the past, and in general still, it has been considered fairly disastrous to build a motel on the wrong side of a highway, with less than 500 ft frontage, on hilly sites which require expensive grading, or in a location near a number of other motor courts. Yet motels have been built and have thrived in each of these situations. The answers seem to depend on a number of factors, some local, some national. A crisply attractive, fairly priced motel, on the wrong side of a highway for the heaviest traffic, can exert a very strong pull in a shabby area of less desirable motor courts. Motels catering largely to commercial travelers can sometimes gain profit from a fairly restricted site easily accessible to the business district; and in a popular resort area, a 200-ft strip of beach can be a bonanza. Or, as a new approach, one large industrial corporation has recently built, and operates, a pleasant motel near one of its small town factories for visiting business contacts.

The increasing cooperation between better motels, and the activities of



LEGEND

A. "Self-Service" Pass through
B. Ref.
C. Pass through
D. Range
E. Fryers
F. Griddle
G. Sink
H. Steam Table
I. Soiled Dishes
J. Prewash Sink
K. Dishwasher
L. Glass Washer
M. Veg. & Pot Sinks
N. Freeze
O. Mixer
P. Orange Drink
Q. Milk
R. Coffee Urns
S. Desserts
T. Water
U. Ice Cream
V. Cashier
W. Display
X. Men's Toilet
Y. Women's Toilet
Z. Booths

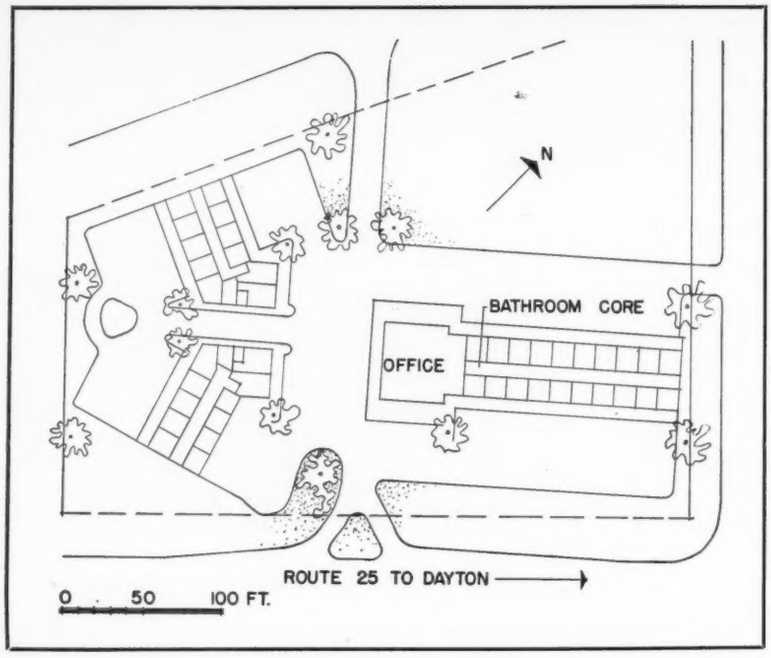
A self-service drive-in feature which eliminates car hops is an idea planned for this restaurant which might be adapted to motels. Besides regular counter and booth service, a service window is at the rear (letter A on plan) for motorists who want to eat in their cars. The restaurant, now nearing completion, was designed by Joseph J. Morgan and A. J. Varnas, Architects

2 O'BOYLE'S DRIVE-IN RESTAURANT, BUCKS CO., PA.

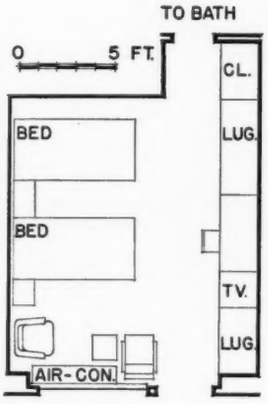
national motel groups have, no doubt, been responsible for the success of many improbable sites. National publicity, recommended lists, and ratings by the American Automobile Association are fostering the custom of contacting specific motels in advance for reservations, instead of the old stop-where-you-can-when-you're-tired attitude. Several national motel chains have also been established which offer more or less standardized accommodations and services, and strive to keep patrons within their own or affiliated orbits. The influence of air travel is also having its effect in some localities; resort vacationists and businessmen arrive by air, rent a car and drive to a motel where they have reserved rooms. All these items will probably gain in significance, and should be as carefully considered in choosing a site that is both economical and productive, as the now prevalent and prudent customs of checking traffic density, ease of accessibility, drainage conditions, etc.

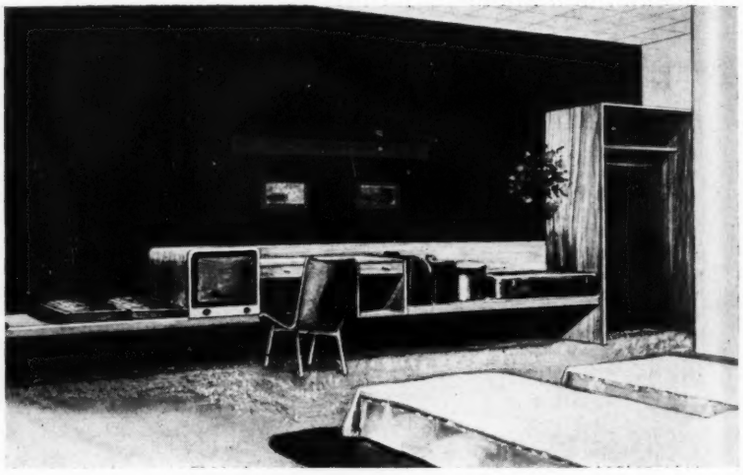
RESTAURANTS, CONCESSIONS AND RECREATION FACILITIES

The previously held opinion that restaurants were not paying propositions in connection with motels is being reversed by many operators. The appreciation expressed by patrons who can obtain at least a quick breakfast before a day's journey has even led some motels to offer a continental breakfast free of charge. The exact type of facilities provided must still depend on local conditions, but the following arrangements have been noted: a small serving pantry for serving a light breakfast in the lobby, or in the guest rooms; more extensive use of vending machines; a small snack bar or restaurant kept open only through the lunch hour; drive-in service; and



Interior layouts have been carefully studied in this project for the Red Horse Motor Inn, by Joseph J. Roberto, Architect, and Caroline Kane, Interior Designer. The plan and sketch at right show the basic low-cost room unit, with casework designed for the job. TV units would be supplied on rental basis. The designers' plan for a luxury unit is at upper right



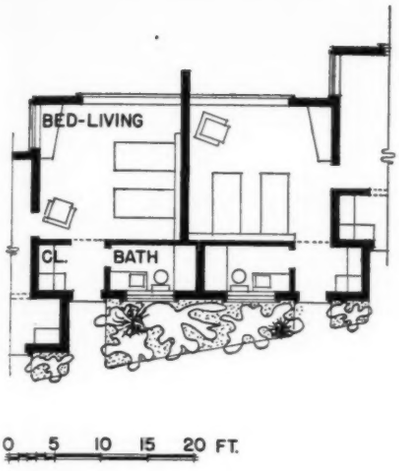


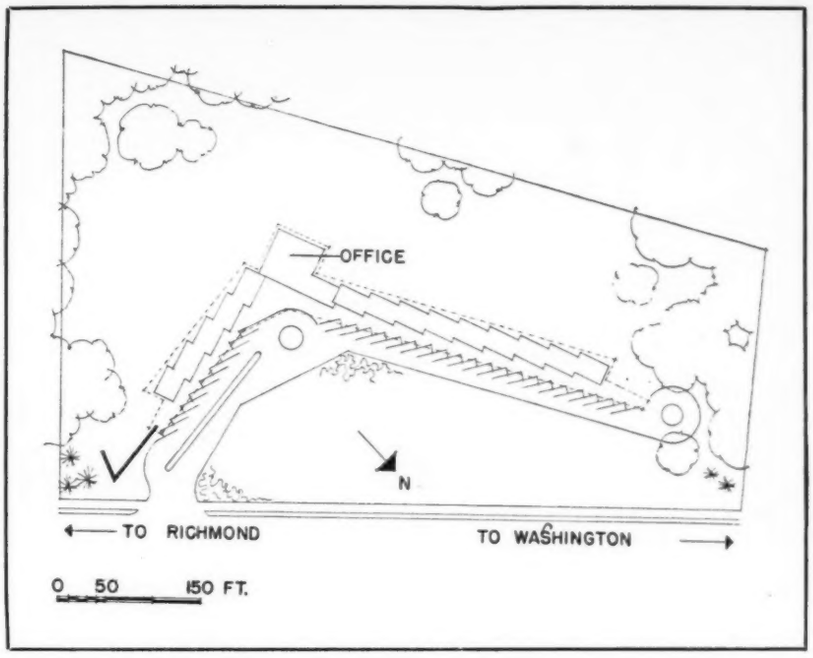
3 RED HORSE MOTOR INN, DAYTON, OHIO

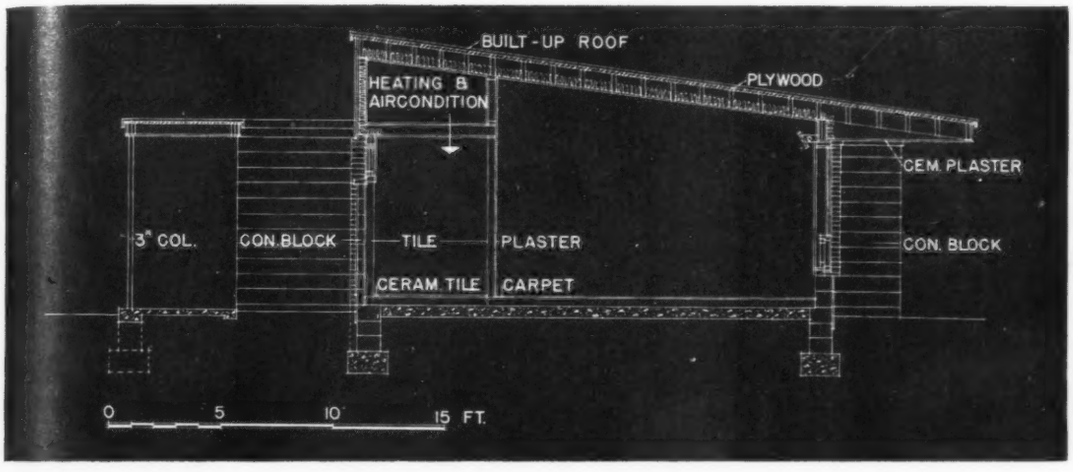
full-scale restaurants. The last two types, sometimes leased as a concession, might be an added source of revenue in off-seasons when there is sufficient patronage from the adjoining community. The seasonal aspects of the business, especially in resort areas, has led some owners to include facilities for small conventions, club meetings, and display rooms for salesmen to help boost year-round activity. These are matched with such hotel services as laundry and cleaning, either on the premises or by contract with a commercial laundry, private phones and switchboard service, television and radio, bars and package liquor stores, free ice cubes, and in a few cases even room service. The extent of recreational facilities provided seems to depend largely on that offered by close competition. Filling stations are still not considered desirable unless the motel is in an isolated location.

GENERAL PLANNING AND EQUIPMENT

Flexibility in the arrangement of rooms and suites has become more important with the growing variety of patronage. Commercial and resort visitors tend to prefer rooms with convertible sofa beds that serve as living rooms by day, while transient tourists prefer the standard bedroom arrange-







Privacy for room occupants has been stressed in this project by Caleb Hornbostel, Architect. Noise and lights of a car driving up and being unpacked are baffled by placing entry, closets and baths on side adjoining parking space. Adequate insulation blocks noise between units. Planned only for one-night stops, office area includes all-purpose lounge, breakfast bar

4 MOTEL FOR MAX ALPERT, RICHMOND, VA.

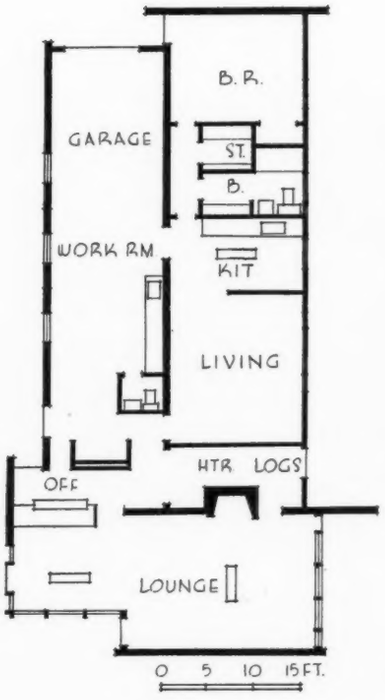
ment. Families with children often shop for motels with kitchenette facilities and have caused some owners to overlook the previous objections to increased upkeep. More and more motels are approaching hotel standards in interior furnishings, with carpeting, many lamps, fine mattresses and tile baths. Unit air conditioning and heating equipment in each room has become fairly standard in many regions as it permits easy cut-off of unrented sections. Provision of noise control, adequate privacy, and protection from the glare of headlights and electric signs are vital. However, fewer motels provide garages or carports, especially in the warmer climates.

In the midst of the rosy glow surrounding the motel business, at least one word of warning has been sounded, and a point of view that might incidentally help architects to rule out some of the more chi-chi ideas forced on them. In an article for *Hotel Management* magazine, C. Vernon Kane, partner of Horwath & Horwath, accountants, points out the present attitude of insurance and mortgage companies, who have become very cautious with regard to motels: "The more luxurious motor court may be handicapped by its better appearance. The economy-minded traveler of the future may drive into a plainer motor court in the hope of getting lower rates."

EXPANDING MOTEL:

Addis E. Noonan Associates, Architects & Engineers

The motel utilizes water pumped from a deep well on the property, has its own sewage disposal system. Water system is oversized to augment fire extinguishing equipment



5 CASA MAÑANA MOTEL, SAN ANTONIO, TEX.

Each unit (typical plans at right) has individual window A.C. unit, thermostatically controlled gas wall heater. Office (above right) has PBX board, 5-ton A.C. unit

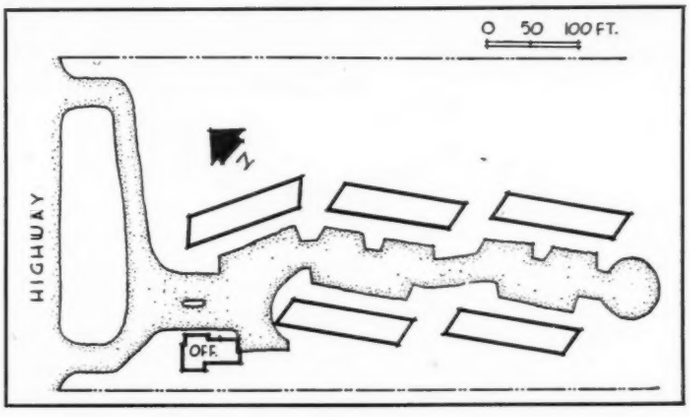
STAGE ONE

Thomas B. Thompson, Architect

CASA MAÑANA MOTEL is perhaps adroitly named, for these six crisp new buildings form the nucleus for a larger motel slated to include an impressive variety of recreational and sales facilities. Adjoining properties, which also belong to the owners, will be developed with a cafe-lounge, a drive-in, a liquor store and a service station. It is also proposed to provide a swimming pool, a small golf course, picnic grounds and similar facilities along a small creek on the property. The present rental units are placed on high ground with an open vista across a valley. Each building has eight units, angled for greater privacy. End division walls between units are lightweight concrete block and serve as acoustical insulation; staggered baths are also planned to reduce noise transmission. Other walls have redwood siding. Future plans include 24 more units and development of terraces and sitting areas outside all rooms. Furnishings, color schemes and site planning are all being done by the architects.

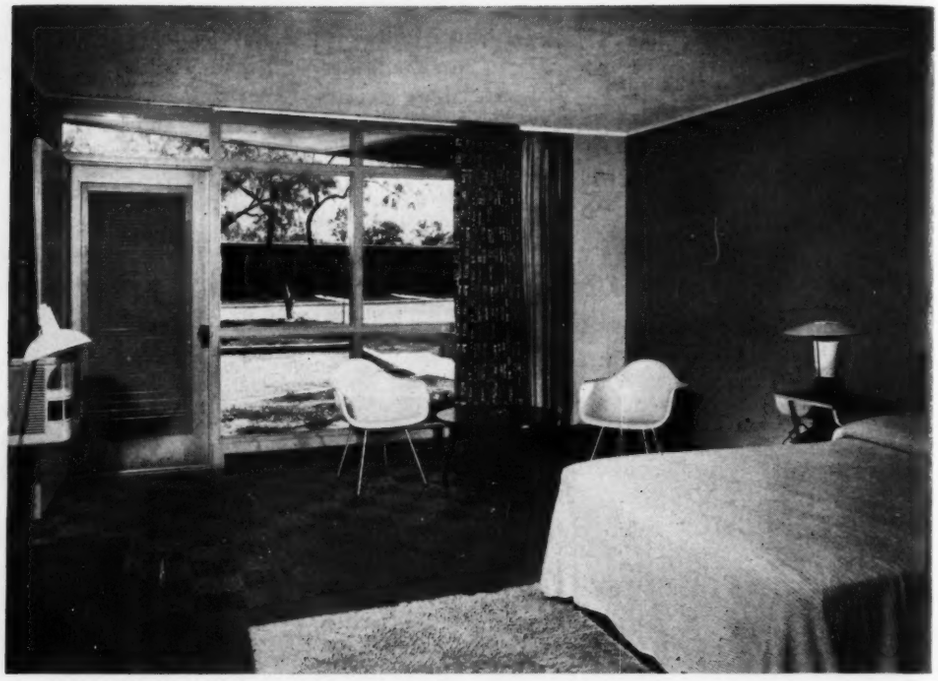
Ulric Meisel

Each 8-unit building has central water heater. All units have showers, eight have tubs. Foundations are "floating" reinforced concrete slabs with 8- by 16-in. perimeter beams



5 CASA MAÑANA MOTEL, SAN ANTONIO, TEX.

Ulric Meise



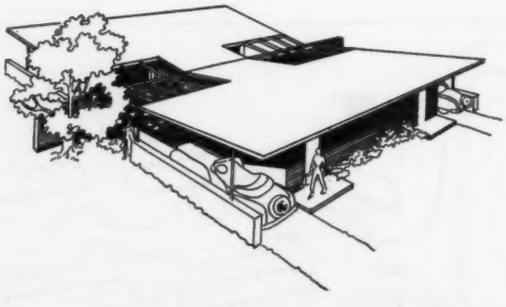
Casa Mañana interiors are also kept crisp and simple. Concrete end walls are waterproofed and painted. Other walls and doors are natural-finish gum plywood. Ceilings are painted wallboard, insulated with glass wool blankets. Floors are colored cement tile. All baths have ceramic tile floors and wainscots

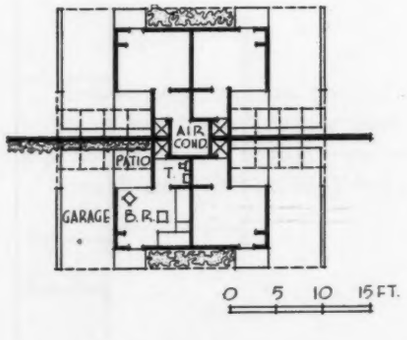
6 SPRINGER MOTEL, NEW ORLEANS, LA.

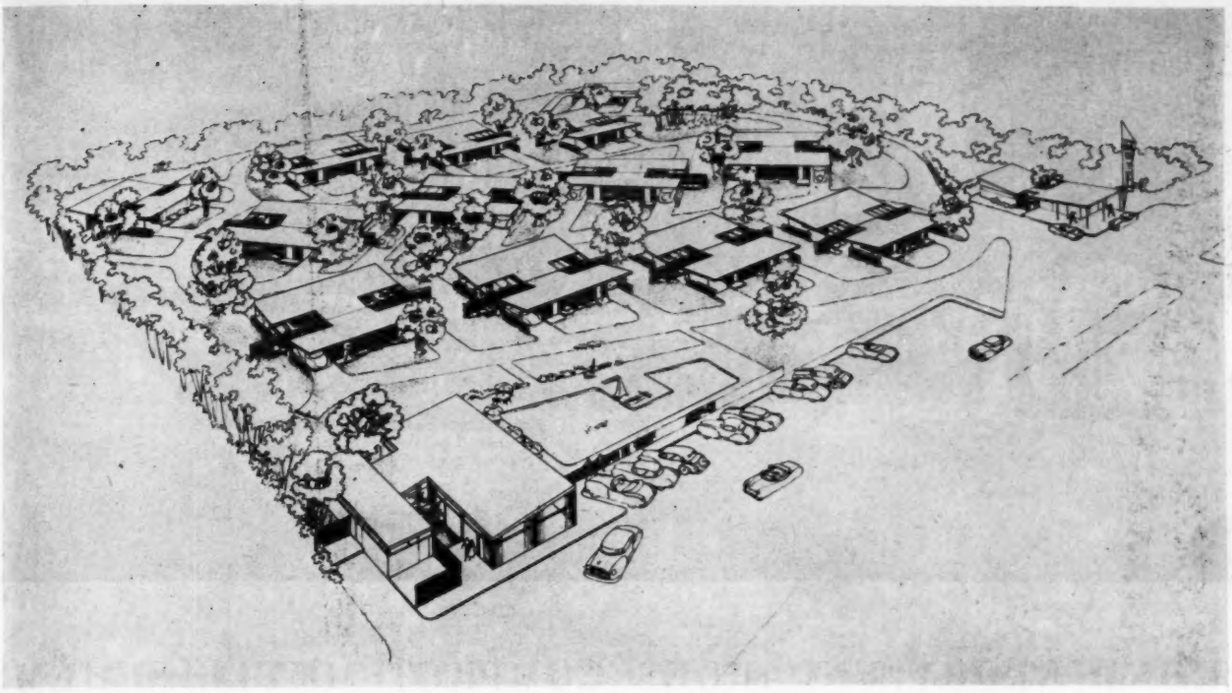
REVISED PROJECT: HIGHER DENSITY FOR HIGHER RETURNS

Ricciuti, Stoffle & Associates, Architects

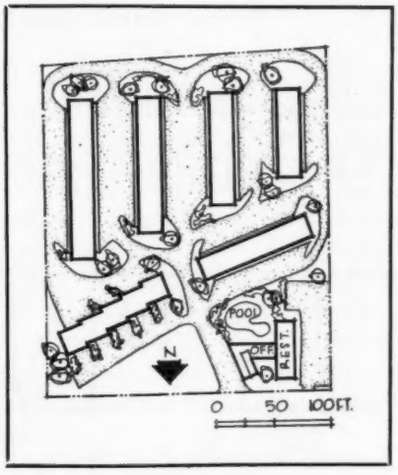
THE ROLE OF FINANCES in the designing of motels is plainly indicated in the development of this project to be built near New Orleans. The site, a plot 360 ft wide by 440 ft deep, had several drawbacks: it was on the wrong side of the highway for incoming traffic to the city, and was in an area with a high density of sub-standard motels. The original scheme was planned to create enough appeal to offset these factors by an informal arrangement of basic 4-unit cottages. Each unit was given a high degree of privacy by the use of small patios; elimination of windows in the front also shielded units from auto headlights. The need to provide more units eventually forced the adoption of more conventional row-type units, eliminating garages and combining recreation and office areas into one building.

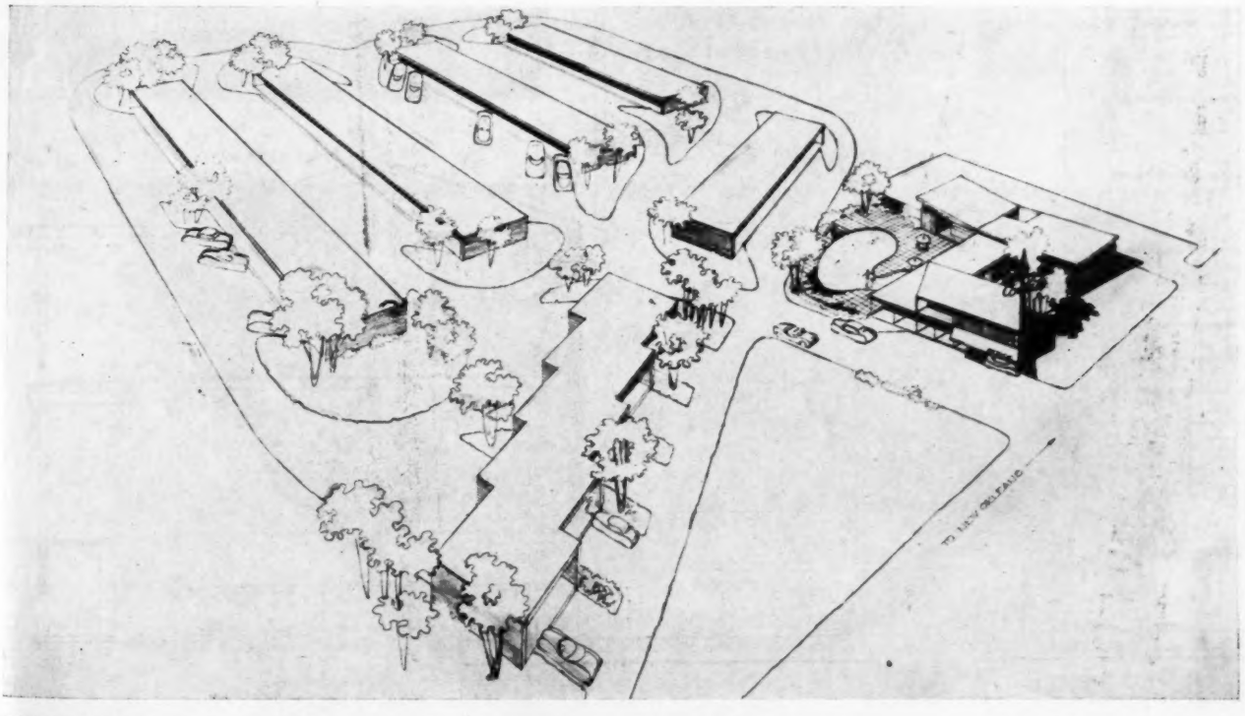






The original motel scheme (above) includes 50 units in 4-unit cottages (bottom opposite page), and separate restaurant-recreation and office-administration buildings. The revised scheme (right and below) increases capacity to 128 units, eliminates garages and patios. An effort was made to preserve an appearance of openness from the highway by using a triangular shaped lawn to give incoming traffic a full view of the combined administration-recreation building and the pool. Exterior finishes will be brick and redwood or cypress





SPRINGER MOTEL, NEW ORLEANS, LA.

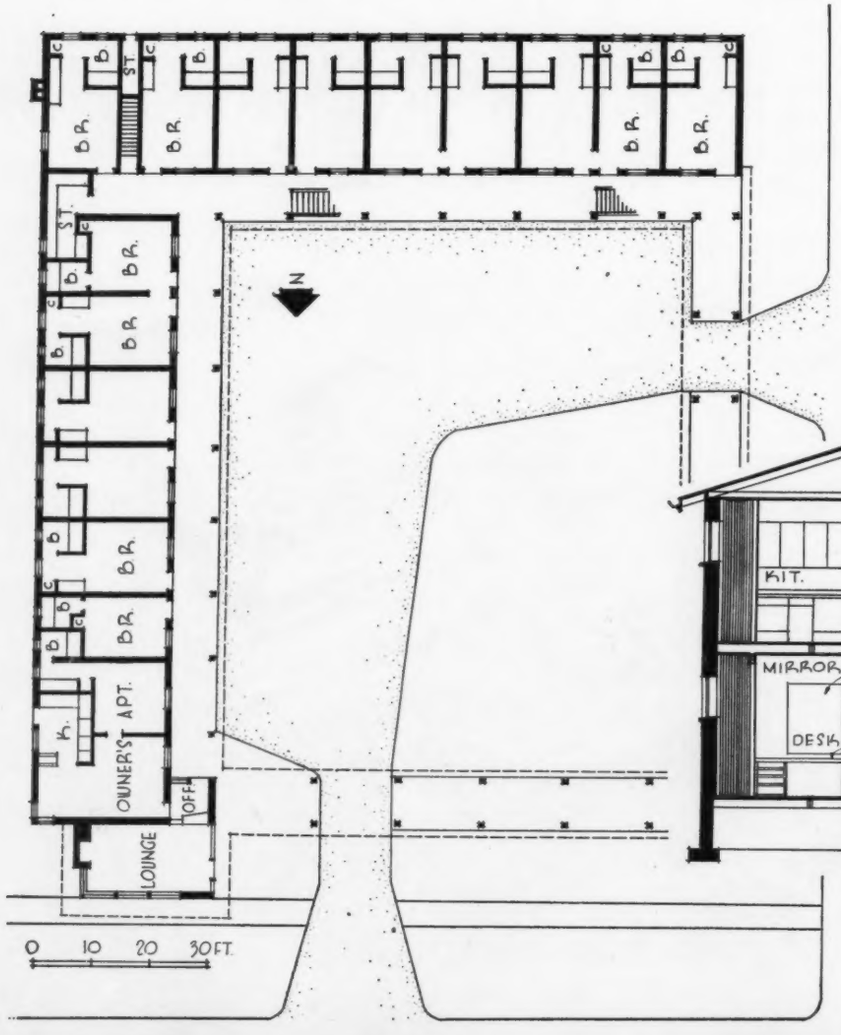
Marshall Brooks

SECOND STORY ENLARGES COMPACT MOTEL SCHEME

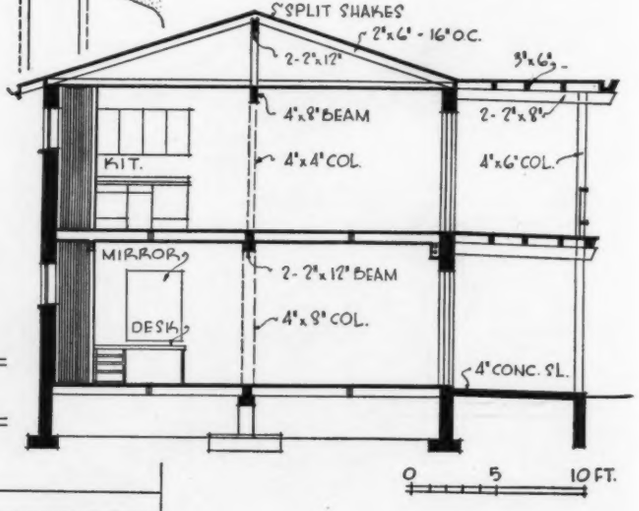
Charles Sink, Architect

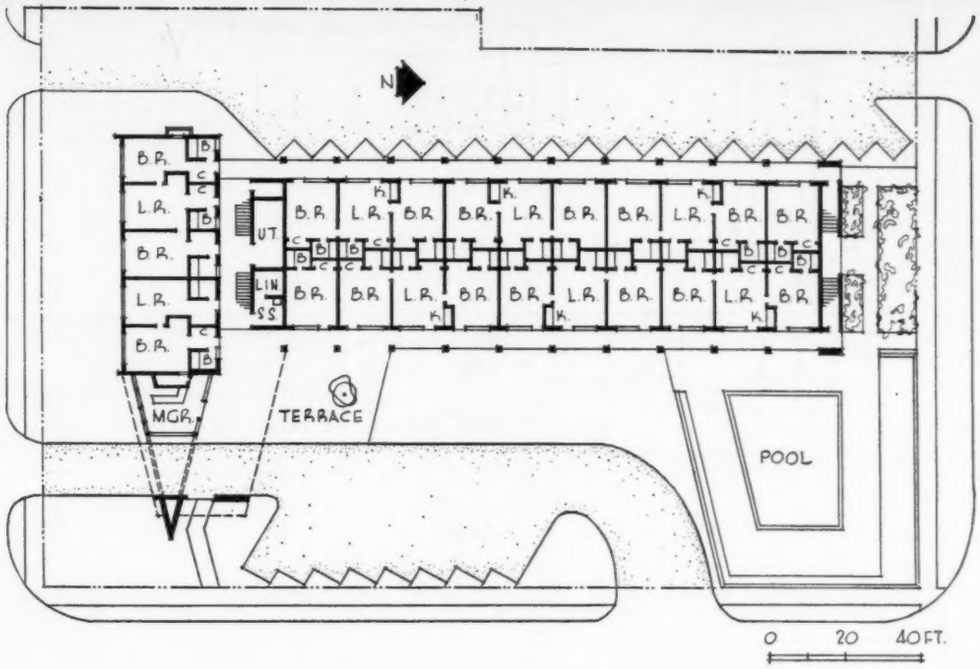
EXTRA rental units were added and parking space preserved on the restricted site of this motel by the use of a two-story wing at the back. Sheltered access to rooms from all parts of the parking lot is provided by cloister-like covered walkways, open galleries and three stairways. A service room is at juncture of the wings.

7 EL PATIO MOTEL, DENVER, COLO.



Lighting along front and in the lounge of the motel gives good visibility from the highway at night (above). Alternate rooms as shown in the section below, have kitchens or large built-in desks, and are designed to be combined as suites if desired





50-ROOM MOTEL PLANNED FOR LONGER STOPS

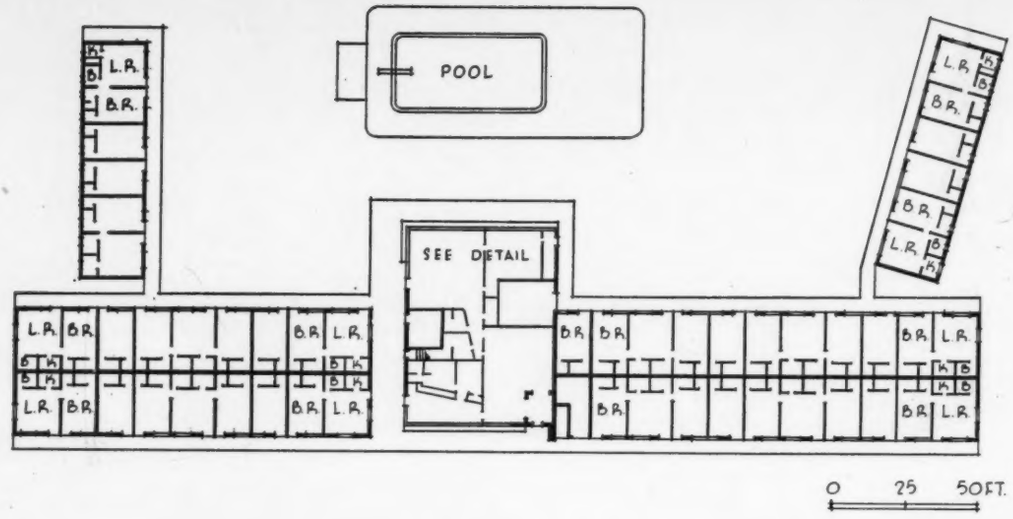
The Edwin T. Reeder Associates, Architects

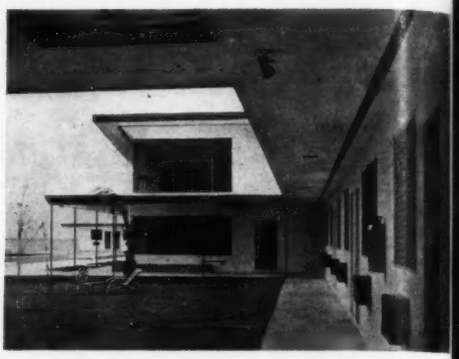
THE wide range of types of tourists that can be expected in the Miami area have been taken into account in the planning of this two-story motel. Rooms are arranged so that they may be combined into apartments of one, two or three rooms to accommodate overnight guests, commercial travelers or families on a holiday. All rooms flank a bathroom core running the length of the building, and open on either the front or the rear parking lot. The second floor is identical to the first. Stairs are placed behind fins at the north end, and adjoining the service rooms. The original scheme for the front terrace and pool shown on the plan above have not yet been carried out.

Ernest Graham

8 THE SHALIMAR MOTEL, MIAMI, FLA.

9 JUNO RANCH MOTEL, JUNO BEACH, FLA.



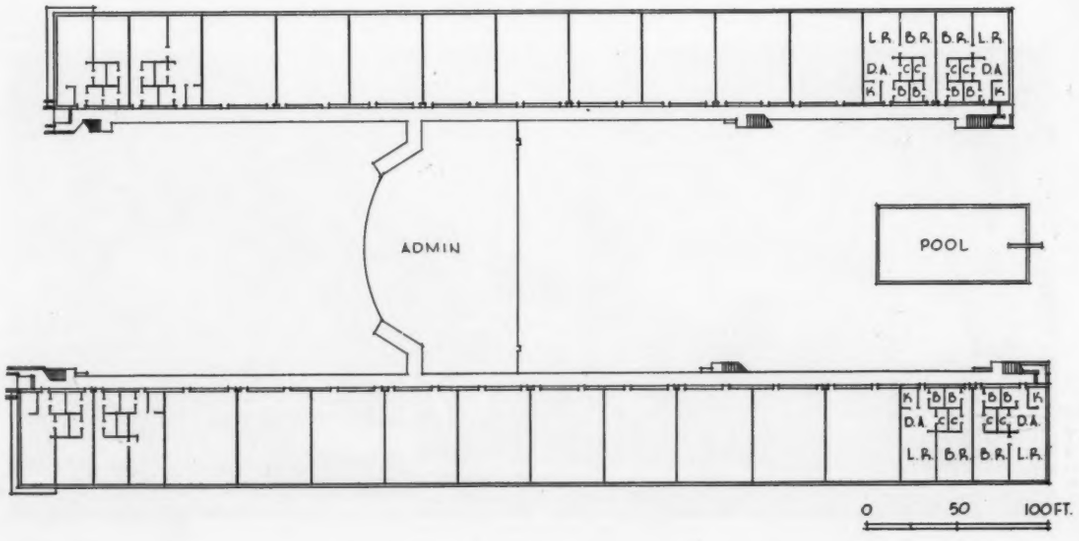


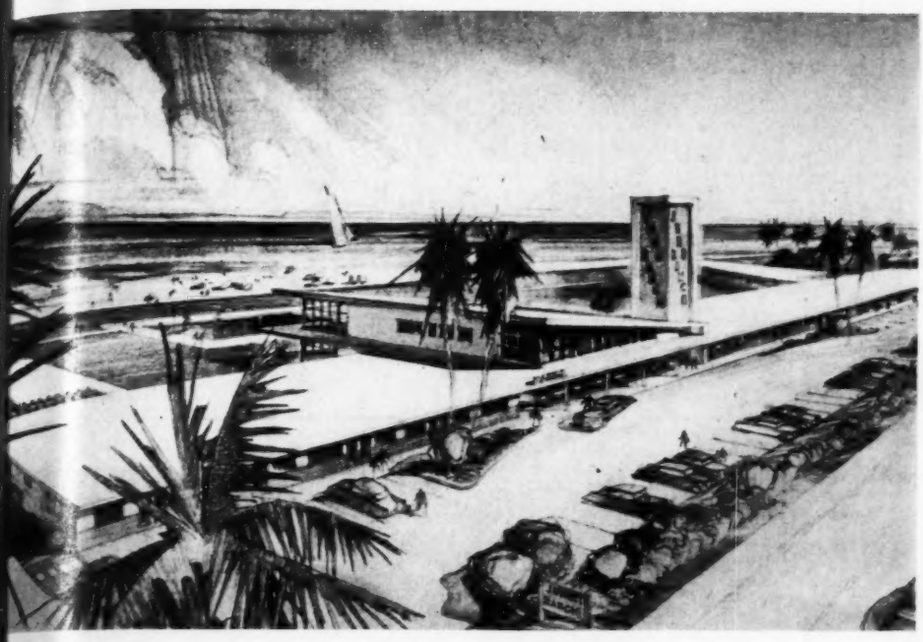
THE resort trade is being cultivated by motels in many areas by the added inducements of such luxuries as running ice water in the rooms, large lobbies, cocktail lounges, coffee shops, television, swimming pools and an enormous variety of recreation facilities. This one-story scheme for the Juno Ranch Motel also features double louvered windows — redwood slats outside, glass inside — individual A.C. units, covered walks around building.

TWO OCEAN FRONT RESORT MOTELS F

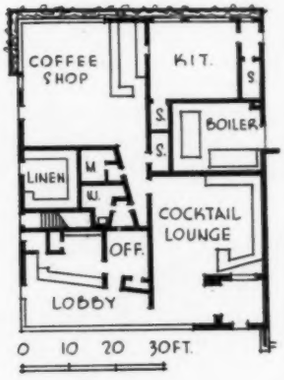
10 CARIBE MOTEL, MIAMI BEACH, FLA.

THE Gold Coast motel strip of Miami Beach has had a phenomenal growth in the past three years. The Caribe Motel (below and right) is typically planned for a holiday atmosphere, and caters to guests who often stay for a three month vacation period. The narrow, deep site was developed with an H plan; parking area faces road in front.





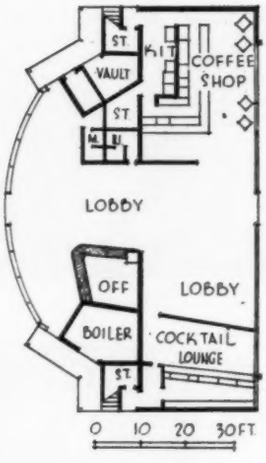
The one-story Juno Ranch Motel has tall clerestory over public areas (plan below). Structure is stuccoed concrete block. Kitchen and coffee shop have access to beach



Norman M. Giller, Architect

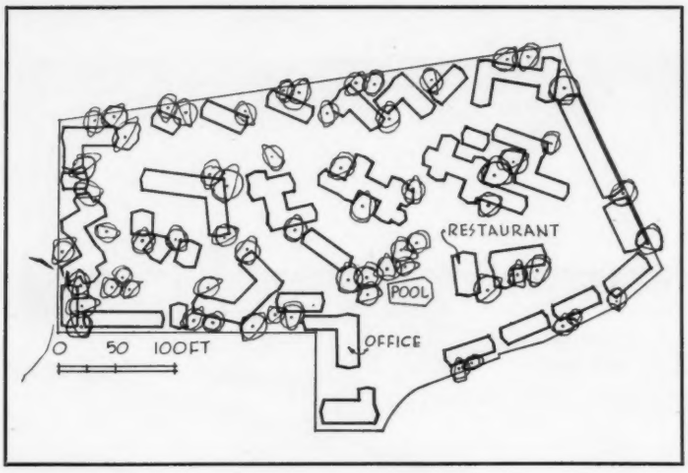
FOR THE FLORIDA COAST

Klara Farkas



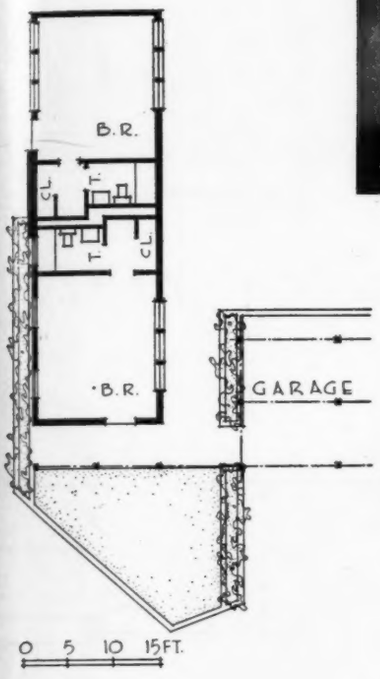
The Caribe Motel has elaborate lounges (plan above, photo above left). Wings are one room deep, have balconies on one side facing pool (photo left)

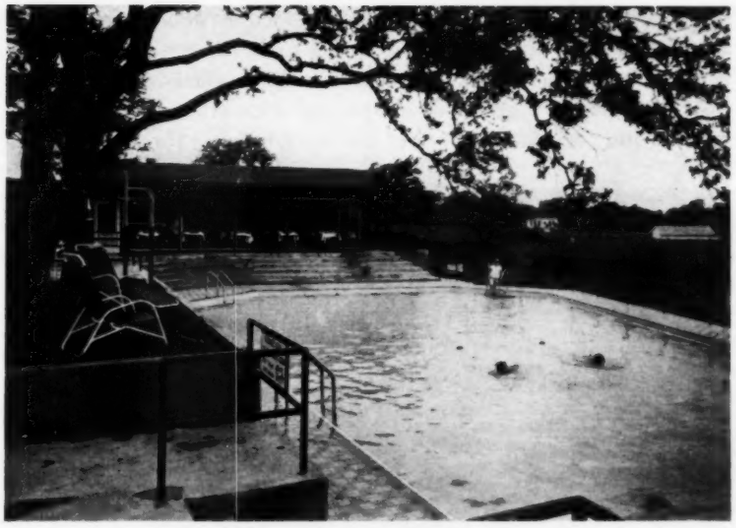
11 TERRACE MOTOR HOTEL, AUSTIN, TEX.



LANDSCAPING AND VARIETY KEYNOTE TEXAS MOTEL

GREAT ADVANTAGE was made of the rolling, wooded character of the site to produce this extremely pleasant, well landscaped and informal motel. The 102 units, no two of which are alike, are arranged in various sized groups made up of the basic unit plan shown on the opposite page. The units are fairly large, with separate dressing room and bath combinations and individual carports. Exteriors include combinations of the following materials: white and pink stone, red brick, vertical boards, rough or smooth boards and bats, horizontal siding, colored wood shakes and corrugated transite. Roofs are built-up with crushed red brick topping. Each building is insulated, and heated or cooled by individual units.

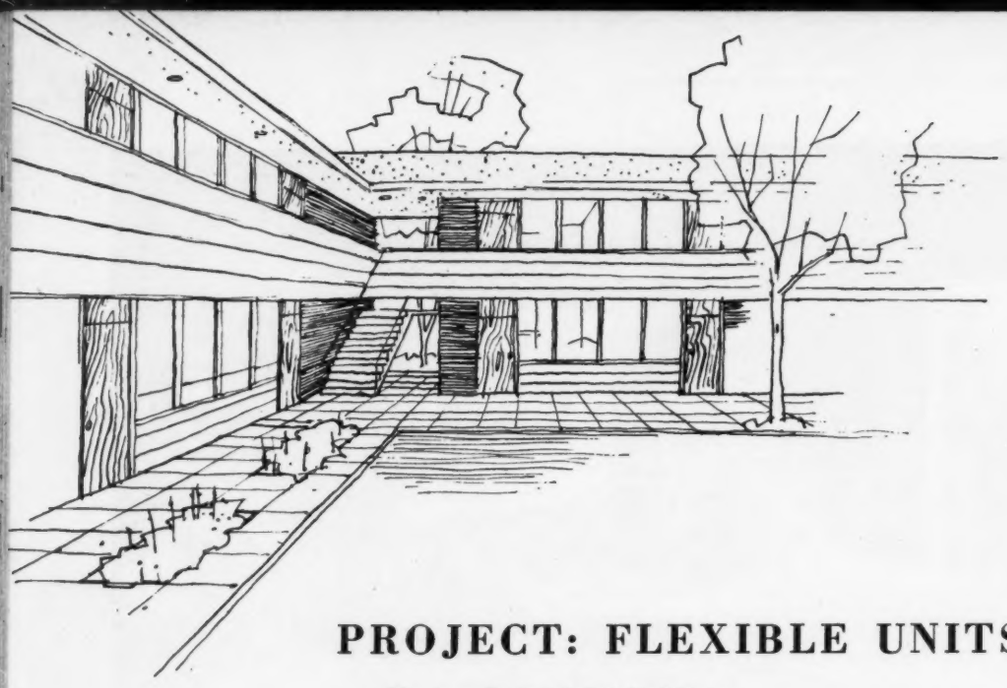


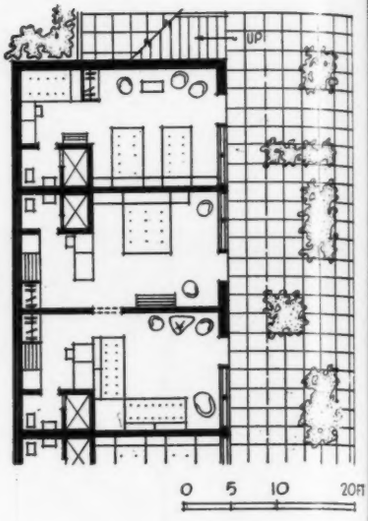


All interiors were also designed by the architects. Wall surfaces include combinations of plaster and vertical boards, plywood, hand-blocked wallpapers, and wainscot. Floors are carpeted

Niggli & Gustafson, Architects

Ulric Meisel



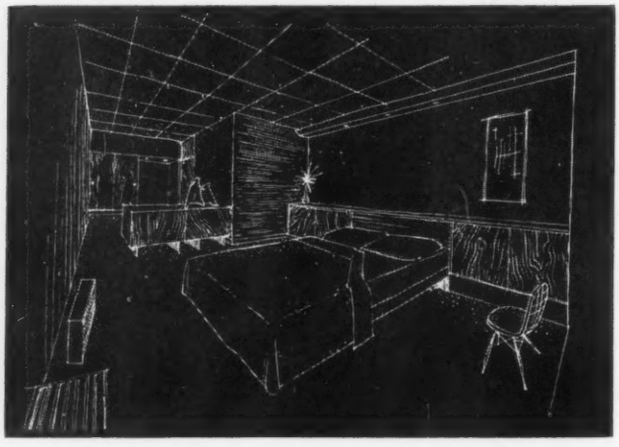


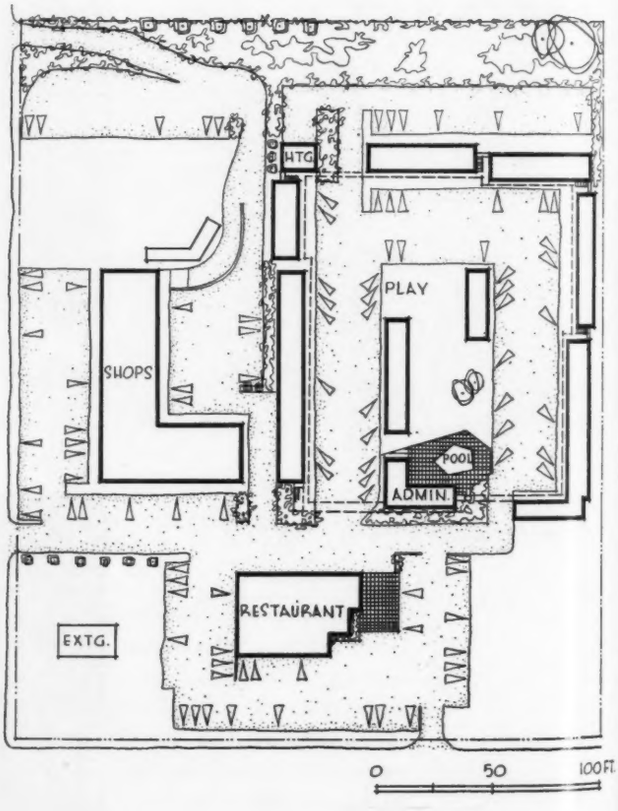
PROJECT: FLEXIBLE UNITS

Norton Polivnick, Architect

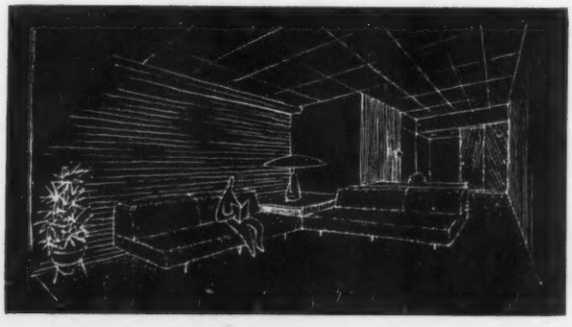
The increasing trend to automobile travel for business or pleasure trips and family vacations poses a relatively new problem for motel designers and operators to meet the varying demands for types of room arrangements. The architect of this motel project has devised an economical solution by providing a basic unit that lends itself to a variety of furniture layouts. The units have been combined into a well organized design that also includes a restaurant, a group of shops and recreation facilities. An existing service station occupies a corner of the site adjoining the restaurant.

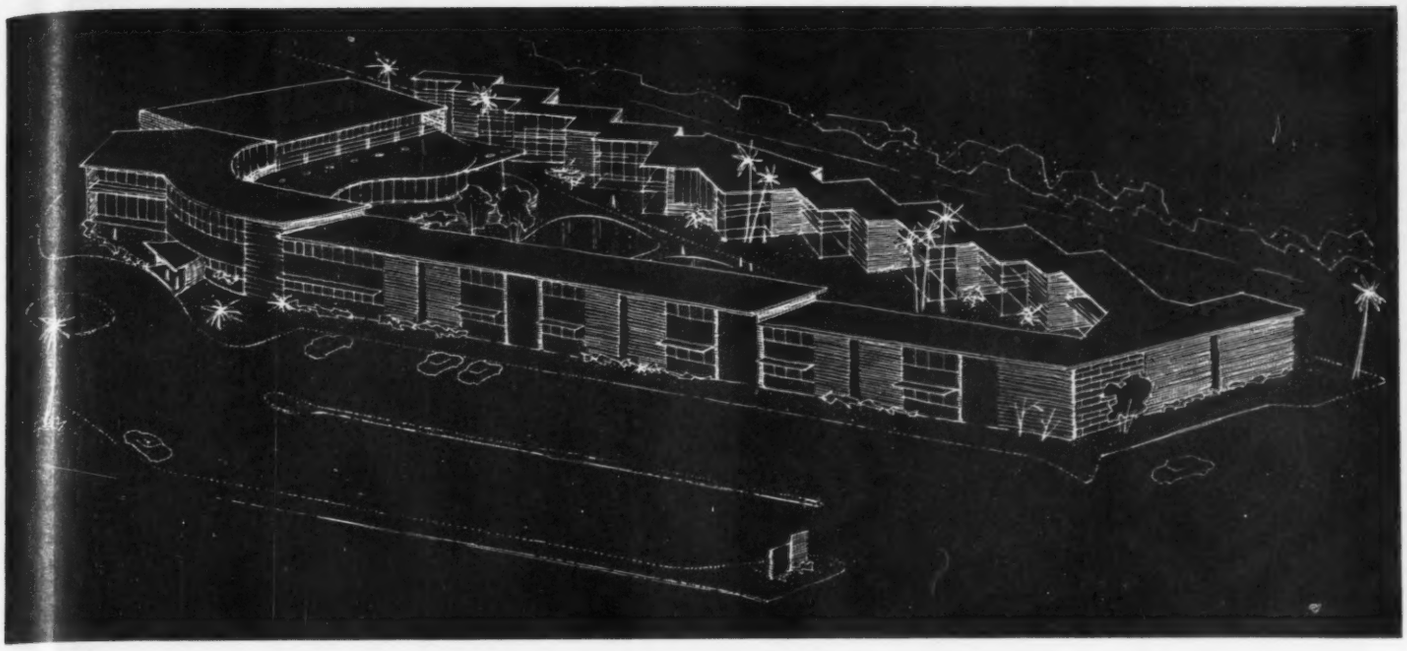
12 MOTEL FOR CHARLES C. WILMORE, DENVER, COLO.





The two sketches shown here illustrate the adaptability of the basic unit to different arrangements: a sitting room with sofa beds (below), a unit with double bed (above)

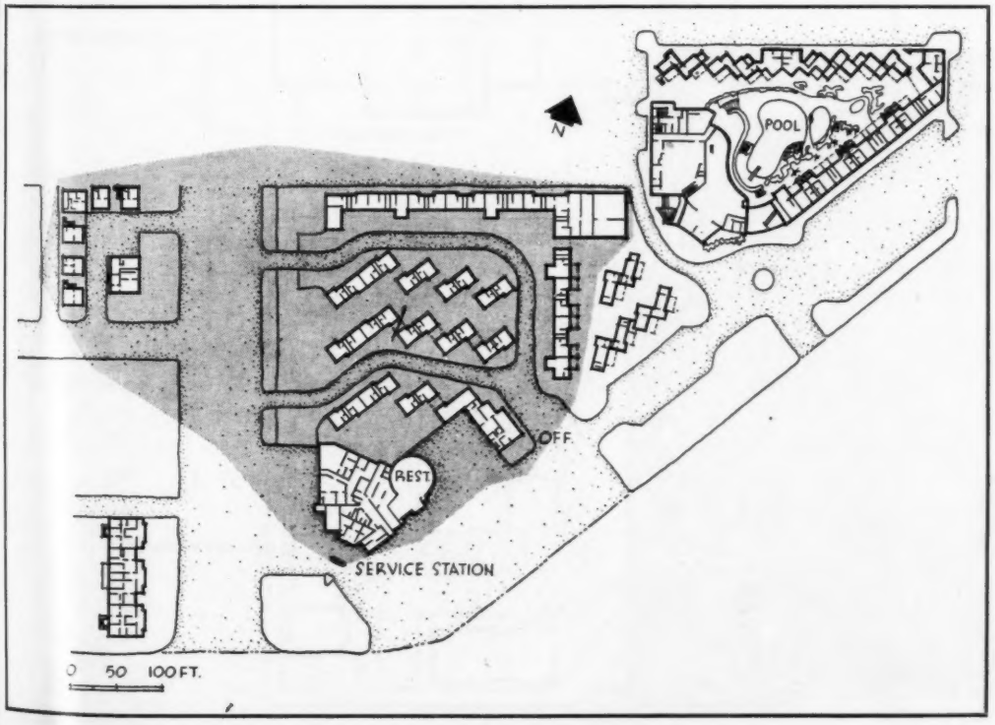


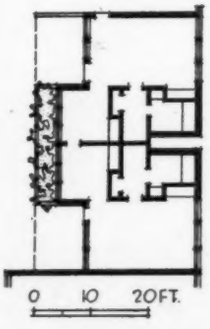


EXPANSION TO BOOST YEAR-ROUND OCCUPANCY

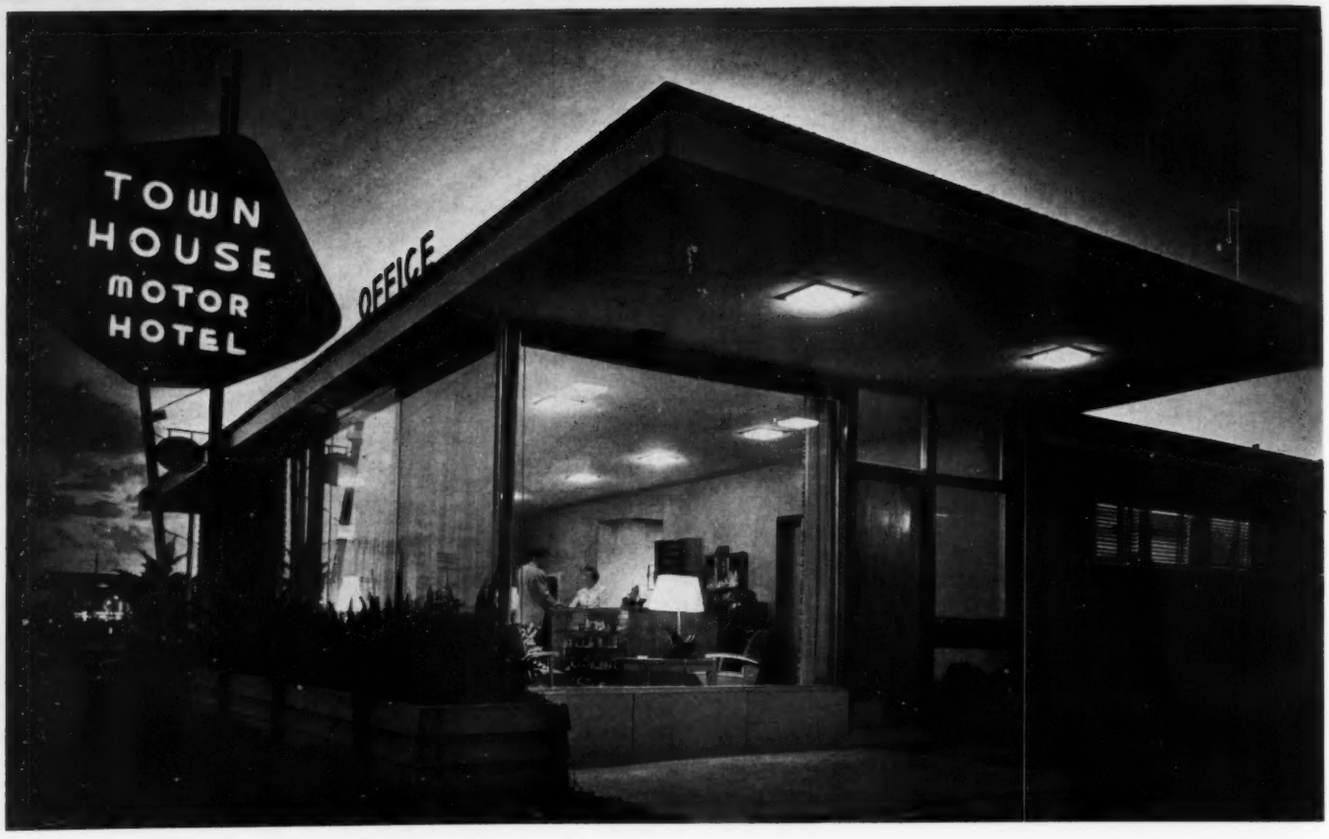
Thomas M. Price, Architect

The relatively short duration of the popular vacation season in many areas — in Galveston it is from May to September — can leave a resort operation with a lengthy and unprofitable slack season. Although the original portion of the Jack Tar Hotel, built in 1940 (shaded area on plan below), has had an overall success, the owners have sought a way to keep occupancy high during the off-season. The result is an addition (sketch above) designed to attract small conventions, sales meetings and club activities. The original property has 100 units; the addition has 60 suites, and expansion of restaurant and meeting room facilities.



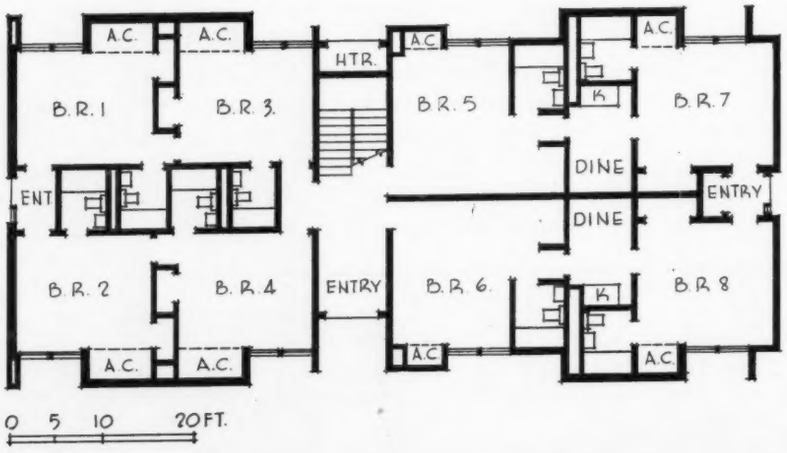


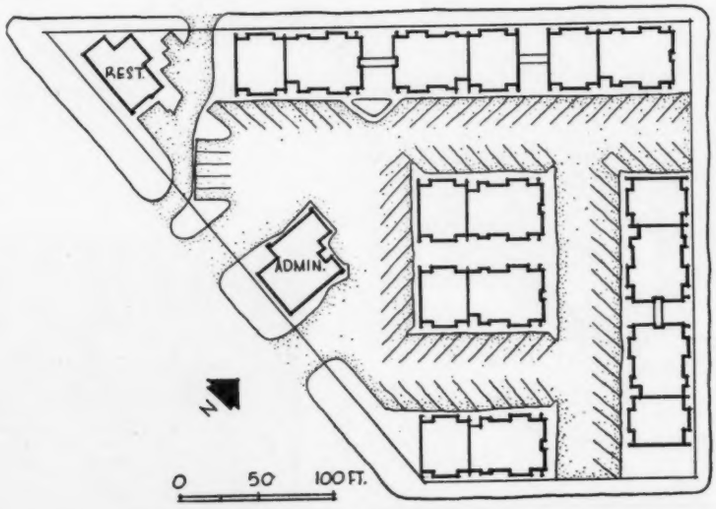
13 JACK TAR HOTEL, GALVESTON, TEX.

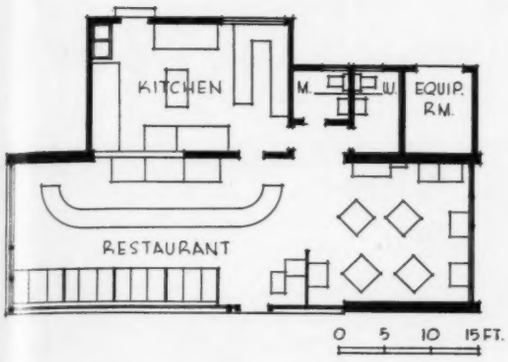


APARTMENT HOTEL COUNTERPART

14 TOWN HOUSE MOTOR HOTEL,
NEW ORLEANS, LA.





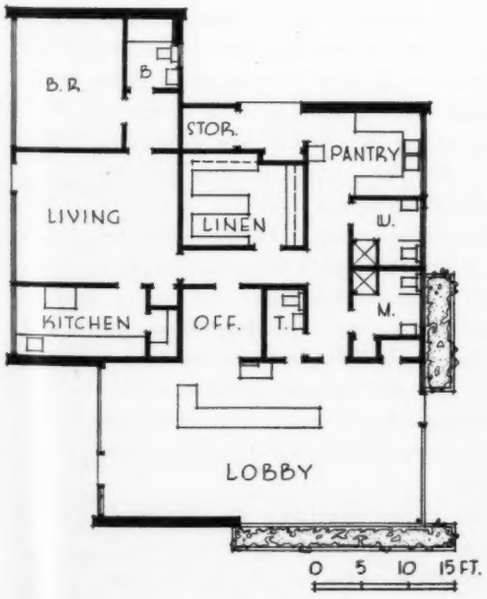


FOR MOTORISTS

Curtis and Davis,
Architects

An unusually adaptable arrangement of rooms has been worked out for this New Orleans motel to permit rental as apartments of one to four or more rooms. The rental units are grouped into eight identical buildings, which feature such items as second floor sun decks, a ¾-ton unit air conditioner in each room, and central forced circulation hot water heating. All the buildings in the project are constructed on concrete slabs on gravel fill, with wood frames, and exteriors finished with brick veneer and cedar shingles. Interiors are finished with plywood and plaster walls and plaster ceilings. Floors are asphalt tile or carpeted. All baths have ceramic tile floors and wainscots, and are equipped with bathtubs and showers.

The restaurant (above) has been located in a corner of the site adjoining a street intersection, where it will attract regular drive-in trade, as well as draw from the motel guests. A small serving pantry has also been included in the administration building (below).



Frank Lotz Miller

PART I

WATER VAPOR CAN DAMAGE BUILT-UP ROOFS

It blisters improperly constructed ones — so good design and workmanship are stressed

1. Air and Water Vapor
2. Economics of Insulation
3. Effect of Solar Heat on Roof Temperature
4. How Materials Absorb Moisture
5. The Importance of a Vapor Seal

Expansion of air and water vapor stretches roofing, forms blisters

By C. E. Lund
Professor of Mechanical Engineering
University of Minnesota

THE MAJORITY OF BUILT-UP ROOFS, insulated or non-insulated, have given satisfactory service. Failures due to blistering are very low (less than 5 per cent of total installations, according to some surveys). But recent investigations have shown that the principal cause is the expansion of water vapor and air, trapped within the roofing, when the sun beats down on it.

This article describes some of the findings of five years of research on roofs at the University of Minnesota Engineering Experiment station, in cooperation with the Insulation Board Institute. The program included, in part: effects of air, moisture and heat upon roof performance; moisture migration within roof structures; and the economic value of insulation.

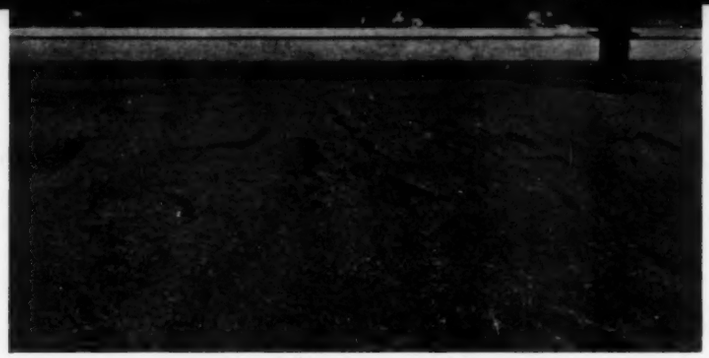
Where good adhesion between the plies of built-up roofing is not attained with the bitumen, some air and water vapor will be trapped. Also, moisture can enter insulation and roofing due to difference in vapor pressure between inside and outside air. Upon a rise in air temperature and exposure to solar heat, the roof temperature may be increased by as much as 80 F. This rise in air temperature produces a corresponding increase in pressure, where air and moisture are trapped.

How are blisters caused by this increased pressure? Air pressure alone is sufficient to raise the weight of a 4-ply roof, but not sufficient to cause separation of the plies in tension. But where moisture is present, say in insulated roofs, the bond may be reduced between roofing and insulation and between plies of roofing, where there is not good adhesion.

Where there is incomplete adhesion between plies, the trapped air or moisture or both tend to separate the plies along the line of adhesion by a shearing action as well as direct pressure. Once a separation of plies has started, there is a progressive action of stretching of the felts which may eventually produce "alligator" ridges, causing wearing and even failure of the roof. It is apparent that leaks will then appear. Pressures may be channeled from 8 to 10 ft from the source of trouble to the point of rupture.

Where abnormally high humidities are anticipated in a building, a vapor seal (barrier) must be used. In areas of low outside temperatures, a vapor seal is necessary even if inside temperatures and humidities are reasonable.

Concrete decks, regardless of location or use of the building require a vapor seal to prevent residual moisture of the drying concrete from escaping into insulation or roofing.

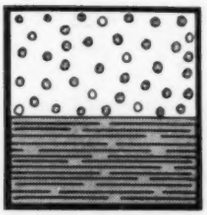


Continuous stretching, contraction of roofing results in "alligator" ridges

Water was found between roofing felts upon opening of a blister

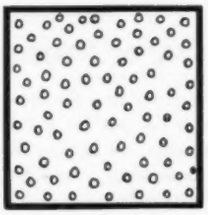
1. PRESSURES DEVELOPED BY WATER VAPOR, AIR

Moisture or air trapped within a roof will cause a considerable pressure when solar heat produces a high roof temperature. Pressures caused by both moisture and air must be considered in the blistering of a roof covering



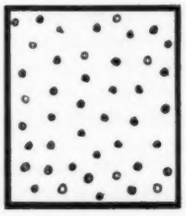
VAPOR PRESSURE

Temperature, F	Pressure, Psi
40	0.122
80	0.507
120	1.692
150	3.716



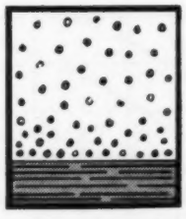
AIR PRESSURE

Temperature, F	Pressure, Psi
40	14.70
80	15.88
120	17.05
150	17.93



AIR AND VAPOR

Temp, F	RH, %	Pressure, Psi Air	Vapor	Total
40	100	14.58	0.122	14.70
80	22	15.75	0.122	15.87
120	7	16.91	0.122	17.03
150	3	17.79	0.122	17.91



AIR VAPOR AND LIQUID

Temp, F	RH, %	Pressure, Psi Air	Vapor	Total
40	100	14.58	0.122	14.70
80	100	15.75	0.549	16.26
120	100	16.91	1.692	18.60
150	100	17.79	3.716	21.51

BEFORE we can fully discuss the overall performance of built-up roofs, a complete understanding of the physical properties of air, water vapor and heat is necessary. These properties account for many of the moisture problems due to condensation upon the inside surfaces of a building and within the walls or roof.

In the following discussion, the fundamental characteristics of air, moisture, and heat, and the relationships existing between them will be discussed. It is apparent that these three elements are capable of causing damage within a roof structure when existing in certain combinations. A roof may be subjected to high air temperatures and solar radiation during much of the year without any apparent damage. However, if in addition to this heat, there is air and moisture present within the roof, the pressures generated by the combination of these elements are apt to cause roof failures.

Air, Water Vapor and Heat

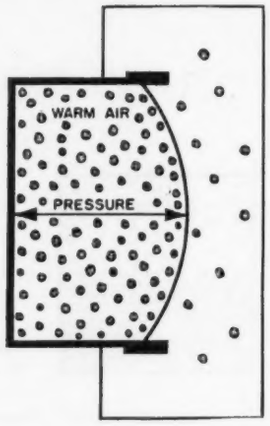
The atmosphere consists of a mixture of air and water vapor. Water vapor is low pressure steam and exerts a pressure which is dependent upon the temperature and the quantity of moisture present. Generally this vapor is invisible, as normally the atmosphere is not saturated or does not contain the maximum quantity of moisture it can hold.

The total quantity of vapor that air can hold is dependent upon its temperature under atmospheric pressure. For example, at 103 F it can hold approximately three times more water vapor than air at 70 F. Air at 70 F can hold five times more water vapor or moisture than air at 28 F. Air at 51 F and 100 per cent Rh contains the same quantity of vapor as air at 70 and 50 per cent Rh.

At low temperatures, outside air can be readily used for ventilating inside spaces having a high humidity or moisture condition.

Consider an indoor space at 70 F and 60 per cent Rh when the outdoor temperature is 0 F. The introduction of outside air and heating it to 70 F will result in air at only 5 per cent Rh which will replace the inside air of high moisture content.

When air is heated from 70 F to 150 F, a pressure increase of 2.2 psi or 317 lb per sq ft will occur if no expansion takes place. If expansion does occur, the volume must increase 11.5 per cent over the original volume if the pressure remains constant.



Vapor Pressure Drop, Psi			
Inside Temp, F	Outside Temp, F		
	10	0	−10
150	3.69	3.70	3.71
100	0.92	0.93	0.94
80	0.48	0.49	0.50

1. EFFECT OF VAPOR PRESSURE

Difference in vapor pressure from the warm side of a confined space to the cold side is the motivating force for passage of moisture through a material. If there is no vapor barrier (in roofs called vapor seal) condensation may occur

2. ECONOMICS OF INSULATION

The left-hand graph indicates the reduction in heat loss through various types of roof decks when using different thicknesses of insulation board. It can be seen that the law of diminishing returns will govern the economical thickness. The right-hand graph shows the maximum inside relative humidity which may be maintained at 70 F (outside air temperature of −20F) without surface condensation for decks having different thicknesses of insulation board

Water vapor will exert its own pressure independent of the air. The magnitude of this pressure is dependent upon the temperature and the quantity of moisture present to produce these pressures. Vapor in air at 70 F and 100 per cent Rh exerts a pressure of 3.72 psi. Air and water vapor increasing from 70 F and 100 per cent Rh to 150 F and 100 per cent Rh will cause a total pressure increase of 5.6 psi providing no expansion takes place. If expansion does occur with no change in pressure, a volume change of 15.6 times the original must take place. This indicates the importance of the presence of moisture and vapor within a confined space (under roofing, for example) and its effect on increasing the volume where expandable materials are involved.

Solar Radiation

Often ignored is the magnitude of the heat given off by the sun and its ultimate effect upon increasing roof surface temperatures. Roof surfaces, due to their black color, commonly attain temperatures far greater than the surrounding air temperatures during periods of exposure to the sun's rays. The quantity of heat absorbed from the sun on any surface is dependent upon the angle of the sun's rays and the color of the surface.

The temperature of a dark colored or black surface may rise 70 F to 80 F above the outside air temperature, whereas the temperature of a light colored surface may rise only 20 F to 30 F. During the summer months, black roof surfaces attain temperatures of 150 F to 170 F. The effect of solar radiation magnifies the problem of increasing pressure and volume within a confined space by increasing the temperature.

Economic Value of Insulation

From an economic standpoint, the return on the initial investment for installation of insulation is probably greater than for any other single material in the building industry.

A roof is generally the largest single area of uninterrupted surface of a building and is the location where insulation can be most effective. Many types of structural insulation boards have been developed with specific physical properties for use in the insulation of roof decks. These specific properties are rigidity, strength and insulating value. These materials have also been especially treated to resist absorption of moisture under ordinary atmospheric conditions and to retain this characteristic during and following the construction of a roof. However, care must be taken in order to prevent the insulation from being damp or wet at the time of construction. Likewise, if acceptable design is not followed in the construction of a roof, failure of the roofing may occur, together with the loss of the insulating value of the insulation. However, these problems can be overcome by proper field control.

In many cases a full return upon the initial investment for insulation may be realized within three to four years. To illustrate this principle, a graphical analysis is shown in Fig 1 to indicate the reduction in heat loss or flow through various types of decks when using different thicknesses of insulation board. Because of the close similarity in heat loss for certain types of uninsulated decks, only two curves are shown. Steel and concrete decks have been classified into one single group and gypsum, wood, and lightweight aggregate and other

FIG 1

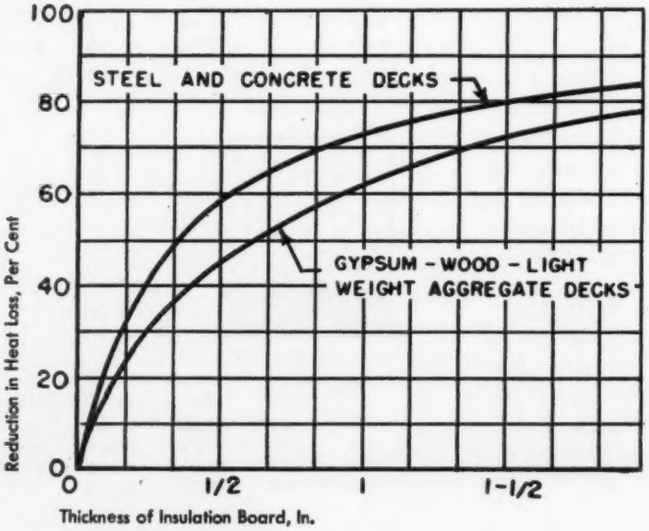
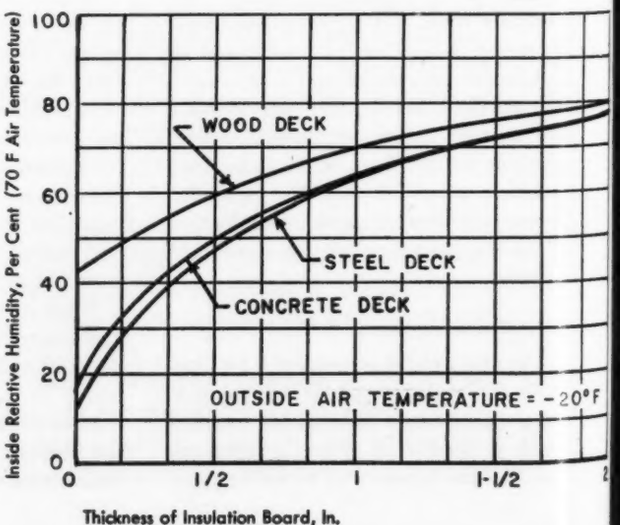
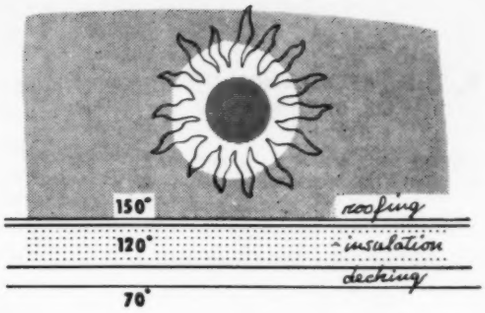


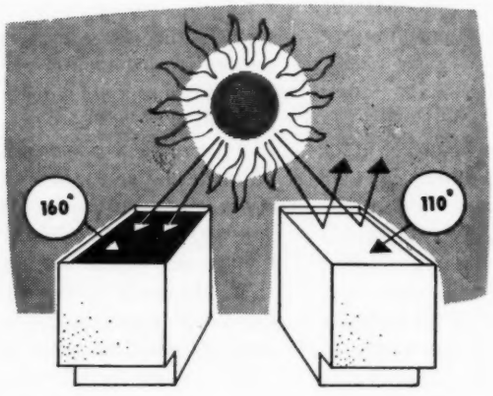
FIG 2

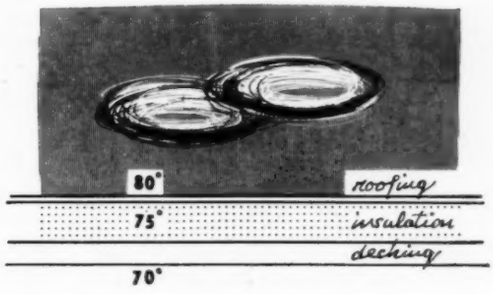


3. EFFECT OF SOLAR HEAT ON ROOF TEMPERATURES

During the summer months, black roof surfaces sometimes attain temperatures of 150 to 170 F, but light roofs reflect some of the solar radiation and cut the heat. If moisture and air are trapped within roofing, the effect of the sun's heat may cause blisters to form. The sketches at right show what roof temperatures could be expected on a sunny and a cloudy day with an outside air temperature of 80 F







well insulated decks are classified into another group.

From this graph it may be seen that the possible heat saving and reduction in heat loss through a roof deck will vary from 46 per cent with the use of ½ in. of insulation to 84 per cent with the use of 2 in. of insulation, depending upon the insulation thickness and the type of deck. Obviously, the law of diminishing returns will govern the economical thickness of insulation.

In serving as a barrier against heat loss, roof insulation serves another extremely important purpose in preventing surface condensation on the interior surfaces of the ceilings. Without this safeguard, cold weather would undoubtedly bring about condensation in buildings maintaining high humidity conditions as a result of industrial processing or ordinary human occupancy where minimum ventilation exists.

If adequate provisions are not made to insulate the roof, materials, equipment and furniture may be seriously damaged as a result of water dripping from excessive surface condensation. The effect of insulation in a typical roof deck upon the relative humidity of the inside air that may be maintained without condensation is shown in Fig 2. Obviously, the outside air temperature has an effect on the maximum humidity which may be maintained within a structure.

The type of deck has a bearing on the heat flow through a section. Steel and concrete decks have approximately the same resistance to heat flow whereas less heat is transmitted through wood, gypsum and lightweight aggregate decks because of their better insulating qualities.

The preceding discussion was concerned primarily with the economic value of insulation. No consideration has as yet been given to the performance of insulation under varying temperature and humidity conditions.

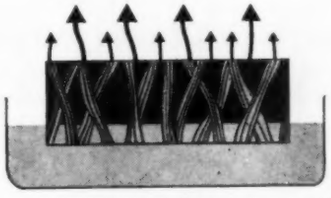
Vapor Barriers

The terms vapor barrier and vapor seal course are synonymous and refer to materials possessing identical characteristics and are generally used interchangeably. However, the term vapor barrier has been in use many years and usually designates materials having high vapor resistance when applied to interior surfaces of insulated walls.

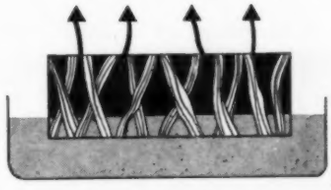
The term vapor seal course is generally used to designate similar materials installed on the under-side of insulated roof structures. The effectiveness of a vapor barrier or vapor seal course is expressed as the quantity of vapor transmitted through the material in grains (7000 gr = 1 lb) per sq ft per hr per in. of mercury vapor pressure difference across a material.

The rate at which vapor will be transmitted through a material is partly dependent upon the vapor pressure existing upon the two sides of the material. If a material is subjected to 150 F and 100 per cent Rh on the cold side, the vapor pressure drop across the material would be 7.52 in. of mercury of 3.7 lb psi. This vapor pressure acts independently of

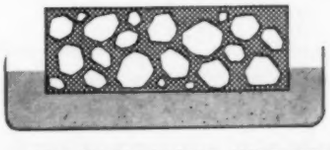
4. HOW MATERIALS ABSORB MOISTURE



HYGROSCOPIC, PERMEABLE



NON-HYGROSCOPIC, PERMEABLE

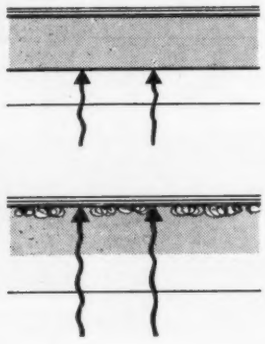


NON-HYGROSCOPIC, IMPERMEABLE

Moisture gets into materials mainly by absorption and diffusion. In hygroscopic materials vapor is absorbed by the fibers, transformed into liquid and re-evaporated; also some moisture passes through in a vapor state by diffusion. In non-hygroscopic materials, vapor is transmitted by diffusion through the interstices only; if there is free water, it may be transmitted by capillary action

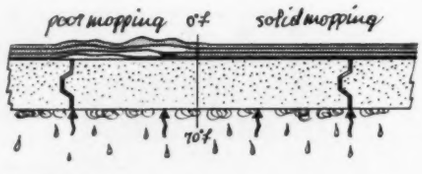
5. THE IMPORTANCE OF A VAPOR SEAL

VAPOR SEAL VS. NO VAPOR SEAL IN INSULATED ROOFS

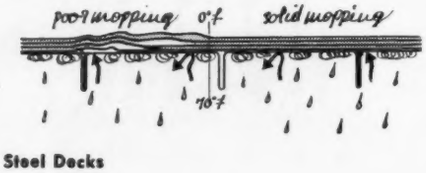


In areas of low outside temperatures, in buildings having high inside humidities, and in buildings constructed with concrete roof decks, a vapor seal is essential. A vapor seal generally consists of two plies of felt solidly mopped with asphalt, and is applied over the roof deck. When the roof deck is insulated, as above, the temperature under the roofing is lowered and condensation may occur if there is no vapor seal

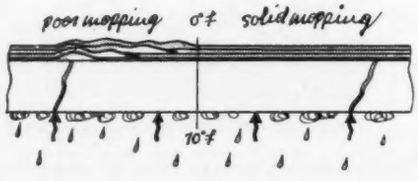
EFFECT OF POOR ASPHALT MOPPING FOR NON-INSULATED ROOF DECKS



Plank Decks



Steel Decks



Poured Decks

Various types of decks, themselves, keep out some moisture, especially steel, but it still can enter through the cracks and joints. The above sketches demonstrate what happens with poor mopping

any other pressure and therefore is the motivating force causing the vapor to flow. The quantity of vapor which will pass through a specific type of material is dependent upon the area and the time during which this condition exists. Thus, different types of materials may be rated for resistance to passage of water vapor in terms of grains per sq ft per hr per in. of mercury vapor pressure difference.

The criterion for an acceptable vapor barrier is that the vapor flow does not exceed 1.0 grain per sq ft per hr per in. of mercury vapor pressure difference. This is usually designated as one "perm."

Four types of vapor seal courses which are representative of the types being applied in the field were selected for test and constructed according to commercial specifications at the University of Minnesota Engineering Experiment Station. Asphalt coatings were used for three of the panels and coal tar pitch for the fourth specimen.

All four types of vapor seal courses showed a zero permeability or that they were impervious to the passage of water vapor. Results of tests indicated that the laps had no effect on a vapor permeability of either the roofing or the vapor seal courses.

Vapor permeability determinations were conducted on five typical types of ten-year built-up roofing. Originally, 15- and 20-year types of roofing were also considered. However, these were omitted when it was found that the 10-year types were impermeable to vapor transmission and therefore it was assumed that the 15- and 20-year types would be equally as impermeable. All types of built-up roofing subjected to 45 days of test or more were found to have a zero permeability rate indicating that built-up roofing is highly effective as a seal against a transfer of vapor.

The results of the investigation definitely established that both the vapor seal courses and the built-up roofing were impermeable to the passage of vapor. It should be emphasized that all vapor seal courses and built-up roofing specimens were solidly mopped with either asphalt or pitch. Tests have shown that 15- or 30-lb felt is not impervious to vapor. Thus, it is apparent that it is the solid mopping of the bitumen which provides the vapor seal. Two of the vapor seal courses consisted of a single ply of felt mopped on one surface and they both were impermeable to the transfer of water vapor.

The permeability of different types of roofing materials is relatively high as compared with materials having vapor seal characteristics. The average rate for one inch of insulation generally used in built-up roofing is 35 to 40 grains per sq ft per hr per in., of mercury vapor pressure difference. Thus, the insulation has a rate of 35 times that of a good vapor seal which is less than 1.0 grains.

As the insulation thickness is increased, the vapor permeability is decreased proportionately. For example, 2 in. of insulation will have one-half the permeability rate of 1 in. of insulation. For all practical purposes, the resistance of the insulation to the transfer of vapor is negligible and thus permits the water vapor to permeate to the cold side when a vapor seal course is omitted.

To obtain a good vapor seal it is necessary that the felts be solidly mopped. Spot or strip mopping of a vapor seal course will permit the vapor to be transmitted through the dry felts, and therefore only a partial vapor seal is obtained.

Likewise in the application of the roofing, spot or strip mopping will permit the vapor to penetrate through the successive layers of the felt until it reaches the cold side. However, in order to obtain a waterproof surface, the final mopping is usually solid and very heavy. This provides a vapor barrier on the exterior side adjacent to the top surface. For strip or spot mopping, vapor is permitted to penetrate through the various plies and condense on the underside of the final layer of felt. This condensation will be either in the form of frost, ice or water depending upon the outside air temperatures. Insulation, in itself, has a very low resistance to the transfer of vapor and thus must be ignored in so far as resisting the transfer of moisture from the warm side to the cold side is concerned.

A clear understanding of the fundamentals of the movement of vapor through different types of materials provides a basis for solving many of the difficulties which are encountered in built-up roof construction. Although all problems appear to be different, they are basically the same.

Nature of Moisture Absoption

A roof consists of several types of materials which may be classified as hygroscopic and non-hygroscopic. Hygroscopic materials readily absorb water. Such a material is untreated wood. The non-hygroscopic materials do not absorb moisture. Such a material is a mineral or glass.

(Continued on page 260)

PRESTRESSING IN TWO SIMILAR STRUCTURES

1 PRECAST BASEBALL STADIUM
FOR CITY OF SHERBROOKE, QUEBEC

Architects: Audet, Tremblay & Audet
Consulting Engineers: Crépeau, Côté & Lemieux
Prestressing: The Preload Co. of Canada, Ltd.

2 CAST-IN-PLACE GRANDSTAND
FOR JAMAICA TURF CLUB, KINGSTON, JAMAICA, B.W.I.

Architect: Wilson Chong
Consulting Engineers: Concrete Products Co.
E. Winch, Engineer

UP UNTIL A FEW YEARS AGO, all prestressed concrete work, except for circular concrete tanks, was being done in Europe. The Walnut Lane Bridge in Philadelphia and a small highway bridge in Tennessee heralded the beginning of linear prestressing (that is, beams and girders) in the United States.

Then at the start of the Korean war, with the demand for new buildings at an all-time high, architects were faced with a steel shortage, and they began to turn more to concrete, and to explore the potentialities of prestressing.

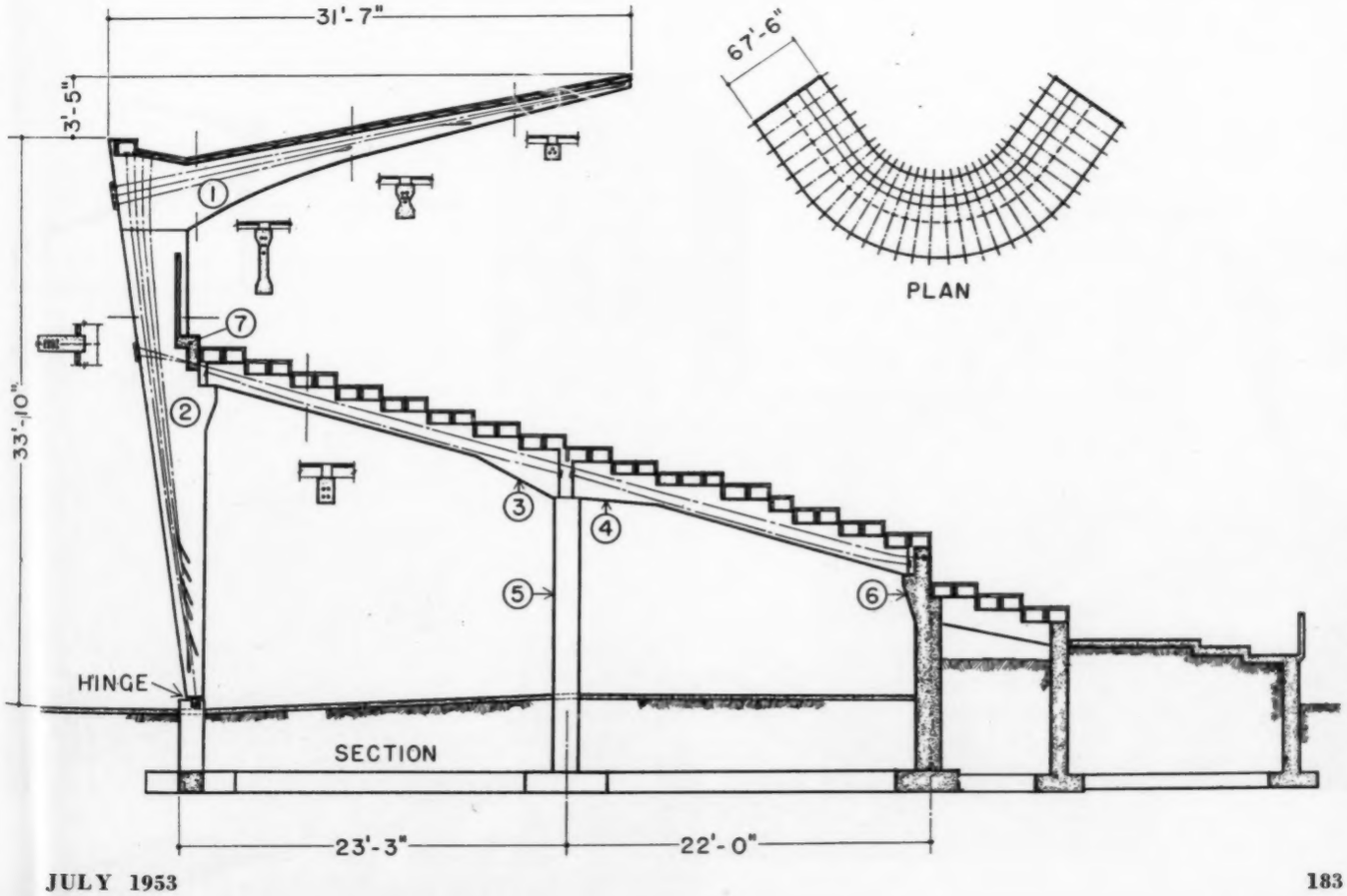
Even though some of these prestressed concrete applications merely substituted concrete for steel in a set of predetermined plans, and hence perhaps did not exploit prestressing as much as if the structure had been conceived in prestressed concrete, there were cases of actual savings in cost.

The motivation for the use of prestressing for the stadium and grandstand, both in the Western hemisphere, was the same as for many structures — to save steel. But an added quotient in both cases is the direct approach in the use of the material, taking advantage of concrete members having no tensile stresses because the tensioning of the steel eliminates them.

Stadium and Grandstand: A Comparison

The stadium is shaped like a boomerang to follow the contour of the baseball

The Sherbrooke Stadium has four main precast parts: a tapered column (2) with a hinge; a cantilevered roof beam (1) and two bleacher beams (3) and (4). Beams (3) and (4) are partially prestressed for handling, then finally prestressed to tie them rigidly to column (2). Column (2) is not prestressed until cantilever (1) is set on top, then tied to frame. The footings are tied with a concrete beam for lateral thrust. Beam (7) is poured in place and joins frames. Joints are concreted



field and has a total exterior length of 406 ft. The grandstand is rectangular and 120 ft long. In section the dimensions are quite comparable. The horizontal projection of the stadium roof cantilever is 31 ft 7 in.; the grandstand, 38 ft. The stadium is 33 ft 10 in. high; the grandstand, 33 ft 2 in.

Structurally the stadium and grandstand are quite different. The principal parts of the 30 stadium frames consist of four pieces, all precast in a casting yard close to the site. A tapered column is prestressed after erection; a roof cantilever is fully prestressed at the yard; and two bleacher beams are partially prestressed in the yard and fully prestressed after erection. All these parts are made continuous by the means of prestressing cables. The components are, in effect, strung together by the wire cables.

The nine frames of the grandstand, on the other hand, are cast in place two at a time, and connected by means of tie beams. An interesting aspect of the construction is that the various high-stress-carrying members, including the 40 ft cantilever, reduce the bending moments in each other to a great extent, giving small sections.

1. Sherbrooke Baseball Stadium

The stadium is the first of its kind to be built in Canada, making use of both methods of prestressing: pre-tensioning and post-tensioning.

Sherbrooke's original stadium, of wood, was costly to maintain, so when it burned down in 1951 they decided to rebuild in reinforced concrete. At the time it was to be built, restrictions on steel for this type of structure precluded its construction in reinforced concrete, and the architect, Jean-Paul Tremblay, felt that prestressed concrete was the answer.

The structure is comprised essentially of a series of 30 frames, identically spaced at 14 ft 6 in. on the exterior, supporting the bleachers and roof.

The frames are prestressed by post-tensioning (the wire cables are tensioned after the set of the concrete, the transfer of the forces being made through end anchorages).

Bleacher and roof slabs are pre-tensioned with parallel wires which are stretched on a long bench before the concrete is poured. After the concrete has hardened, the wires are cut and the tensioning force is transferred to the slab through the bond of the wires to the concrete and through the wedge effect of the ends of the cut wires (the ends become fatter since they are no longer being stretched).

G. M. Demarque, chief engineer of the Preload Co. of Canada, Ltd., describes the action of the frame as follows*: Each frame consists of four precast elements: (1) a 28-ft tapered column with a hinged base weighing 6 tons; (2) a 31-ft cantilever roof beam held to the column by prestressing, weighing 4½ tons; (3) and (4) two 23-ft bleacher beams weighing 3 tons each.

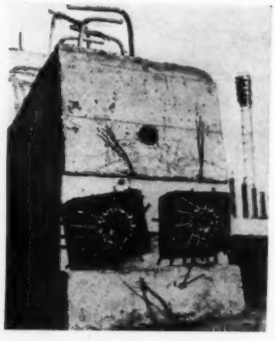
The tapered column is erected before prestressing, and has enough mild steel reinforcing to permit handling.

The two bleacher beams are partially prestressed in the casting yard so that they can withstand their own weight and the dead load of the bleachers as independent beams.

The cantilever roof beam is fully prestressed at the yard. It is set on top of the column and the cables of the column are threaded through holes in the end of the cantilever. When tensioned by a jack from the top part of the cantilever, these cables prestress the column and fasten the cantilever to it. Cables were sheathed in cardboard forms to prevent bonding to the concrete. Preload anchor plates were used.

The joint between the two bleacher beams above the intermediate column is poured in place, and initially the joint between the top bleacher beam is left open and is poured after the roof and bleacher slabs are set. The cables threaded through the tops of both bleacher beams and anchored outside the column and the abutment wall are tensioned to provide continuity. The entire structure, says Mr. Demarque, then becomes a rigid frame to take all live loads.

* *Excerpts from an article in the* Canadian Builder, *August, 1952.*



Tapered column, with unstressed cables projecting

Bleachers beams resting on intermediate column; end above

The Jamaica grandstand, in contrast to the Sherbrooke Stadium, is poured-in-place, and then prestressed. Bleachers are precast of ordinary reinforced concrete and the asbestos-sheet roof is supported by the tie beams. There are nine frames 15 ft apart

The stands and the roof are made of U-shaped slabs, 16 in. and less in width, 1¼ in. thick, and about 10 in. high for the stands and 4 in. high for the roof. The joints are filled with a special plastic.

2. Grandstand at Marlie, Old Harbor, Jamaica, B.W.I.

Prestressed concrete was selected for a number of reasons, listed by the architect as follows:

(1) The use of higher working stresses with prestressing permitted the design of smaller sections which was used to advantage to give structure a light, sweeping effect. This would have been very difficult in ordinary reinforced concrete.

(2) Since the West Indies is an area of severe hurricanes and earthquakes, the architect felt that a structure that had some "give" would be best suited to resist such forces. A sudden force might crack a section of a member, but the section should return to its original position once the force was removed. An analogy would be the case of a person catching a ball. The hand would have to move with the ball to nullify the impact.

(3) Since prestressed concrete is not affected by joints, only two frame forms were made to pour nine frames. Shrinkage cracks, in other words, would have no effect. These forms required three weeks to make and erect, and after that each frame required a week to pour, strip and prestress. Precast concrete risers and treads were cast on a concrete slab at the site.

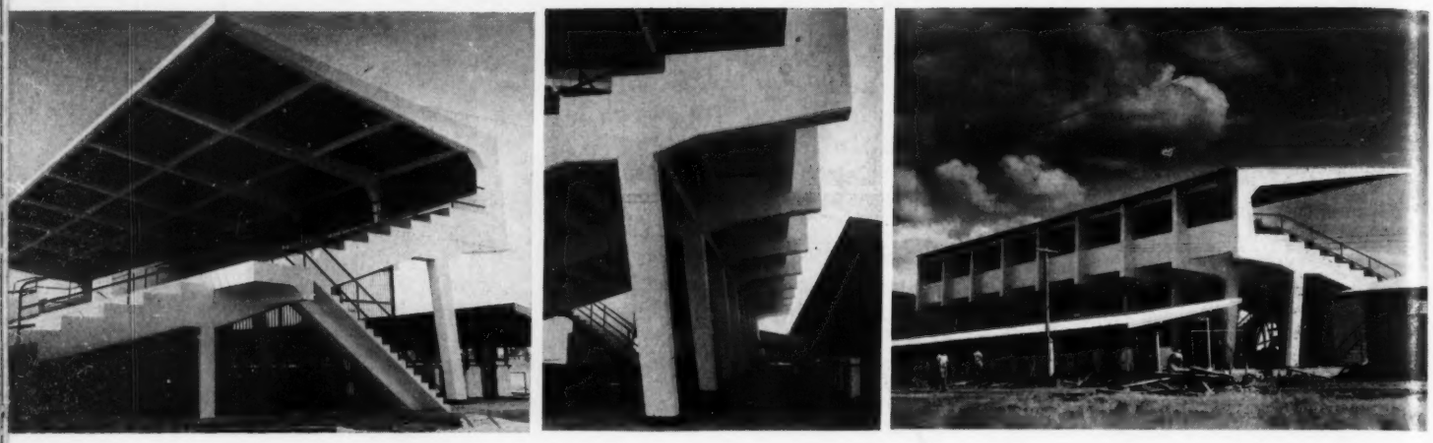
(4) A cantilever of similar length in reinforced concrete would contain a maze of reinforcing which would have made pouring difficult and unpredictable.

(5) The scarcity of steel in British countries makes the use of prestressed concrete for certain types of structures more competitive.

Cantilevered roof beam being lowered into place

Progress photos follow the erection of the framing members which were precast close to the site and erected by a crane. Also shown are the precast bleacher and roof slabs which were pre-tensioned (wires prestressed before concrete pour) in a nearby factory

Stadium with precast, prestressed bleacher slabs and roof slabs spanning frames



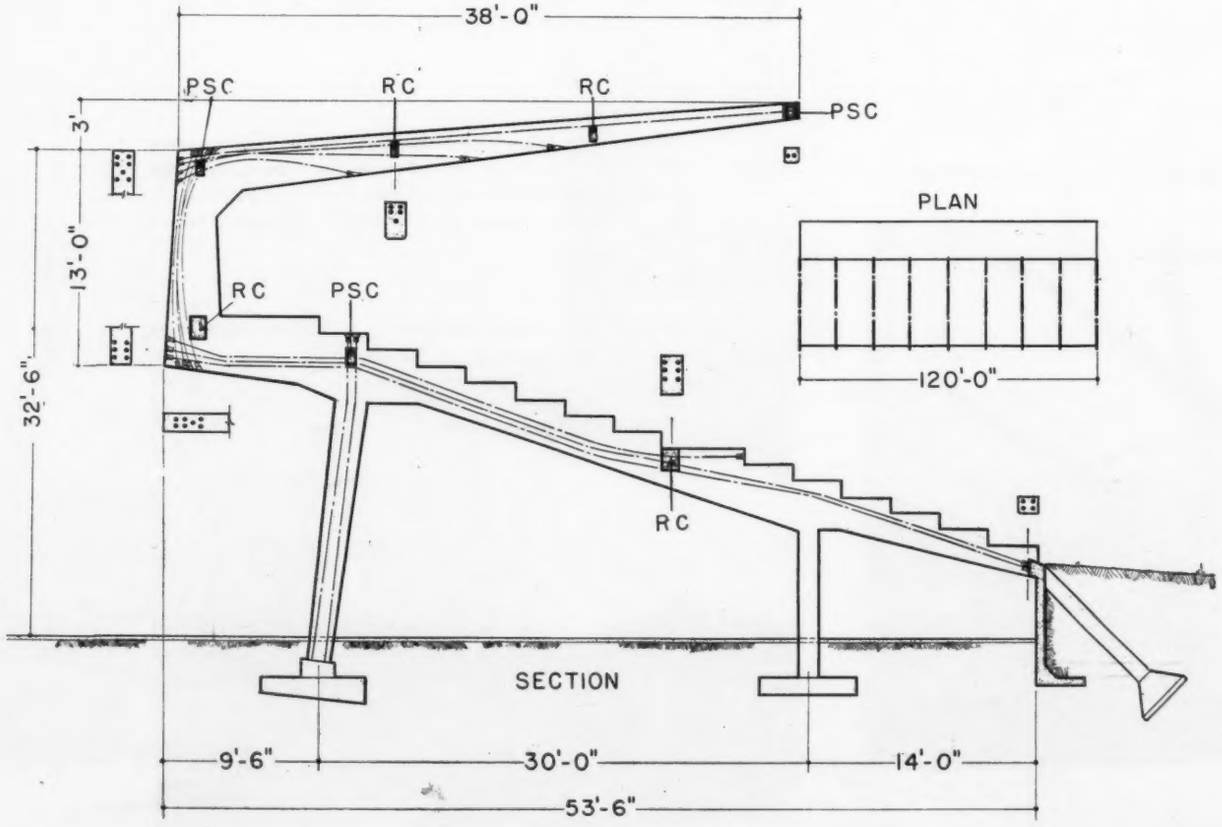
The Jamaica grandstand is designed strong enough for hurricane winds

(6) Cost, appearance, speed of construction and utility convinced the architect that the prestressed concrete was most suitable for all the main members.

There are nine frames and eight bays, the frames being connected by seven tie beams, three prestressed and four reinforced concrete. When the frames were stripped of formwork and shoring, the reinforced concrete held the frames together. The prestressed ties were provided with holes, and these ties were not stressed until all frames were completed. The cables in the prestressed ties extend the entire length of the building and are stressed in one operation.

Since the framing members were post-tensioned, it was necessary to insert inflatable rubber hoses in the forms around which the concrete was cast. When these hoses were deflated and removed, holes were left through which the cables were later strung and then tensioned. The Freyssinet system of anchorages was used.

The nine monolithic frames are tied together by seven beams, three prestressed and four reinforced. Due to the overhanging arm and roof cantilever, bending moments are reduced, resulting in small sections. The thrust of the frame is taken by counterfort columns in contrast to the Sherbrooke Stadium where the abutment walls resist this load

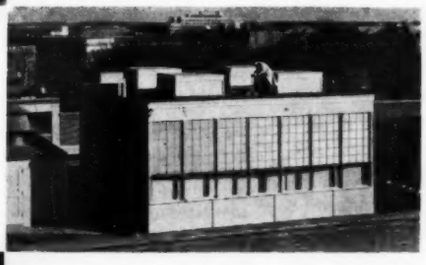


PRISMATIC GLASS PANEL SKYLIGHT CUTS GLARE, SOLAR HEAT

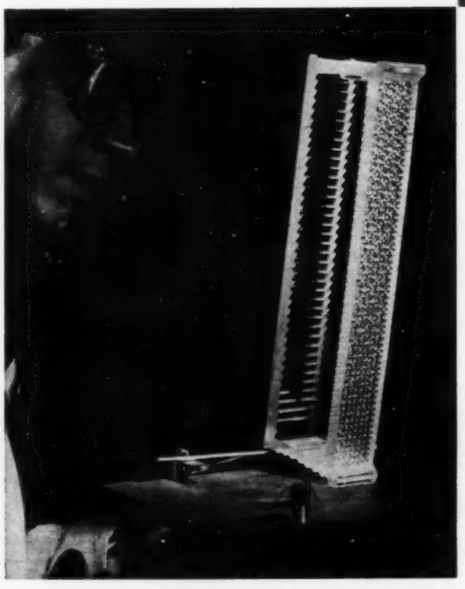
Cooperation between an architect, a manufacturer and a university research department facilitated the development of a new system for glass-unit toplighting of schools, industrial and commercial buildings and other structures. The architect was John Lyon Reid; the manufacturer, Kimble Glass Company; the research department, University of Michigan's daylighting laboratory, directed by Dr. Robert A. Boyd. The result of their joint efforts was the development of the "Kimble Toplite System," a skylight construction system which employs prismatic glass panel units in a factory-fabricated aluminum grid framework.

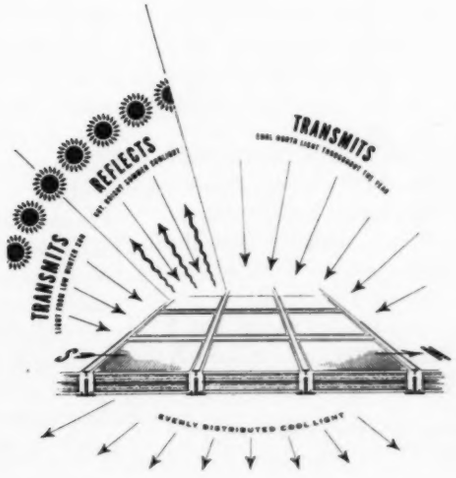
Dr. Boyd was already experimenting with skylighting units which were to result eventually in the new toplight system, when architect Reid stopped in at the daylighting laboratory to discuss methods for roof-lighting a school building. Their talk and subsequent cor-

(*Continued on page 198*)

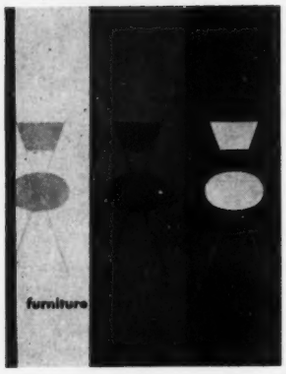


Above: interior of mock-up classroom used to test toplight. Right; exterior of classroom. Wells do not have to be this deep. Below: section of glass unit, showing prismed upper part, light-directing lower part. Bottom right: diagram illustrates how toplight reflects and transmits light during various seasons of the year

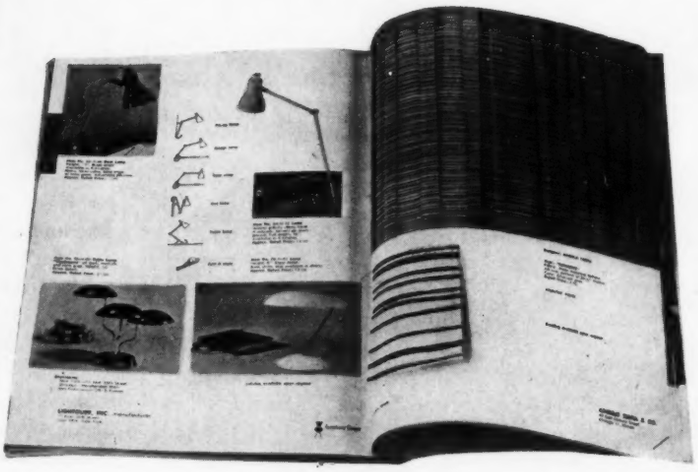




LITERATURE for the Office



SOURCE REFERENCE FOR CONTEMPORARY FURNITURE



▶ *Inside pages illustrate the various types of furnishings, such as these which show some contemporary lighting units and a detailed photograph of a fabric pattern, accompanied by actual swatch of material*

Furniture Forum. This attractive handbook, published quarterly, is a source reference catalog of selected home furnishings. Consisting of new designs in contemporary appointments for the home, the handbook is designed for architect, interior designer or layman. Biographical sketches of participating designers serve as an introduction to the sections which follow. These include furniture, lighting, fabrics, accessories and floor coverings. Photographs of the various items are accompanied by a brief description of the article, dimensions, name of the designer, source of the item and retail prices. The fabrics section includes sample swatches of some materials, so that the actual scale, color and texture can be seen. Latest selections from the Museum of Modern Art — Merchandise Mart Good Design Exhibitions are included in the volumes. The handbook is so designed that the quarterly editions may be compiled into one annual reference book. Illus. One year subscription, $4.50; Annual Bound Vol., $5.00. Pub. by Phillip L. Pritchard, Depot Sq. Bldg., Englewood, N. J.

* ***Other product information in Sweet's Architectural File, 1953.***

Wood Preservation

Handyman's Guide to Home Wood Preservation. This booklet is full of practical information for anyone who must use untreated wood for any purpose. It outlines the company's overall program to acquaint people with the value and economy of treated wood, or "built-in" termite and rot protection. Step by step application of water-repellent wood preservatives containing pentachlorophenol is given. 14 pp., illus. The Dow Chemical Company, Midland, Mich.*

Roof Insulation

Fiberglas Roof Insulation Preferred. Folder contains data on thermal conductance and application specifications. Some 40 photographs of installations in buildings throughout the United States point out the various types of buildings in which the material may be used. Following the illustrations is a list of 350 additional jobs, along with the names of architects, general contractors and roofing contractors. Folded into a convenient 8½- by 11-in. size, the brochure is actually a 33- by 25-in. sheet. Illus. Owens-Corning Fiberglas Corp., Toledo 1, Ohio.

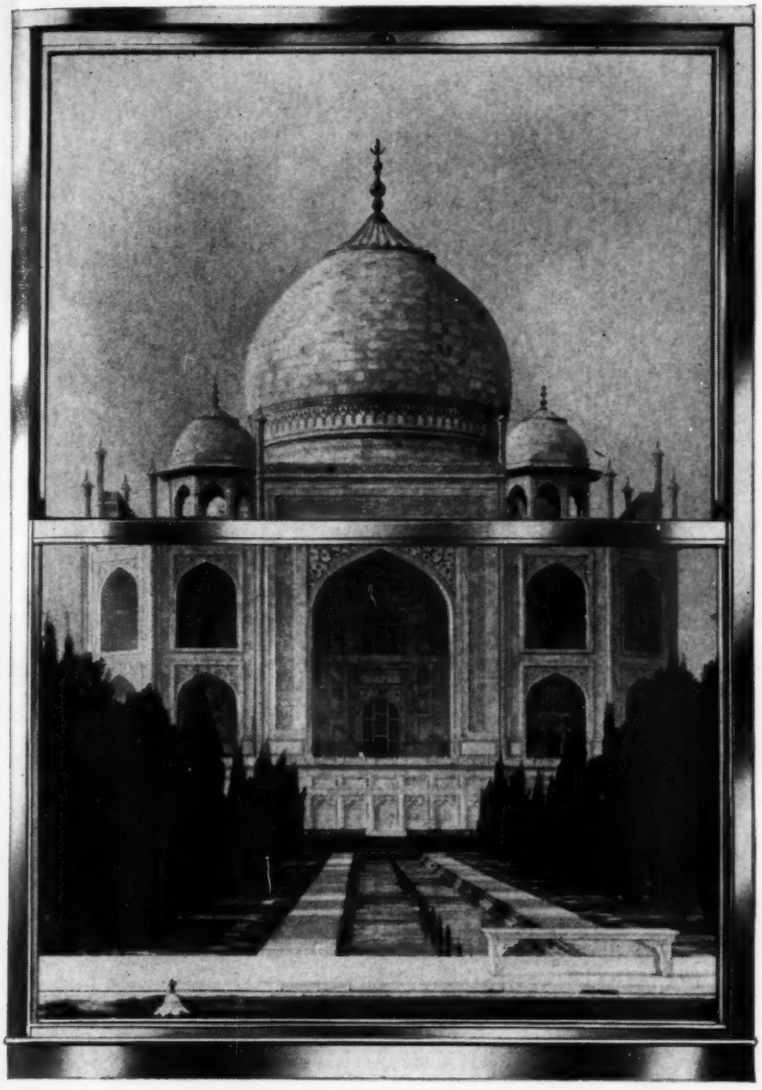
Heating in Classrooms

Five Ways Teachers Can Improve Learning. The basic premise of this booklet is that overheating in schools makes students drowsy and difficult to instruct. Suggestions on how to solve this problem are based on research by Dr. D. B. Harmon, psychophysicist and Minneapolis-Honeywell school consultant. They cover such points as effects of solar energy, danger of post-luncheon "blackouts," adjustment of classroom temperatures for high or low activity, etc. 5 pp. Minneapolis-Honeywell Regulator Company, 2743 Fourth Ave. S., Minneapolis 8, Minn.*

Air Filters

Continental Automatic Self-Cleaning Air Filters. Brochure features automatic capacity table plus engineering and performance data. Descriptions and diagrams of filter media, "ferris wheel action" and "self-cleaning action" are also included. Complete technical data kit available on request. 3 pp., illus. Continental Air Filters, Inc., Louisville, Ky.

(*Continued on page 232*)



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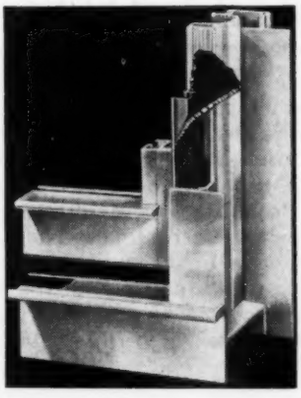

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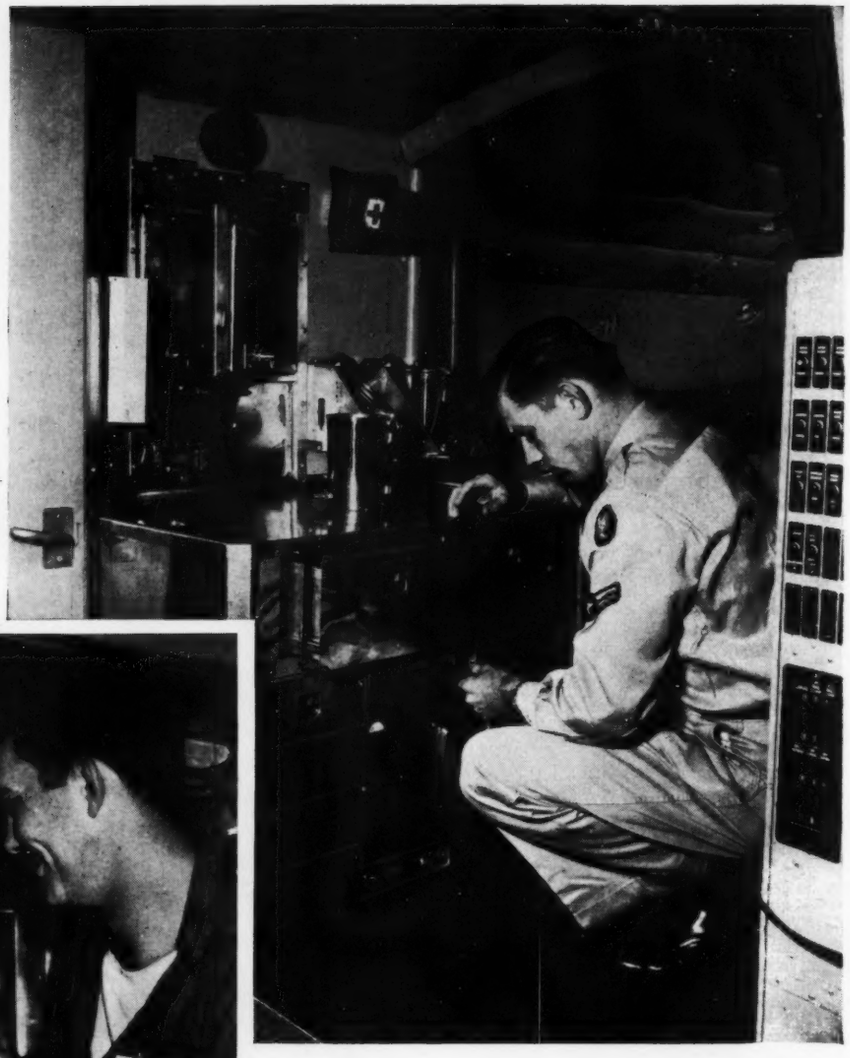

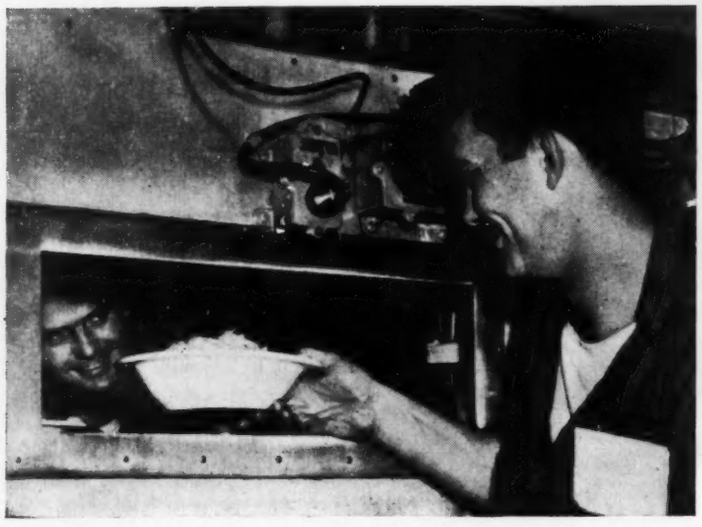

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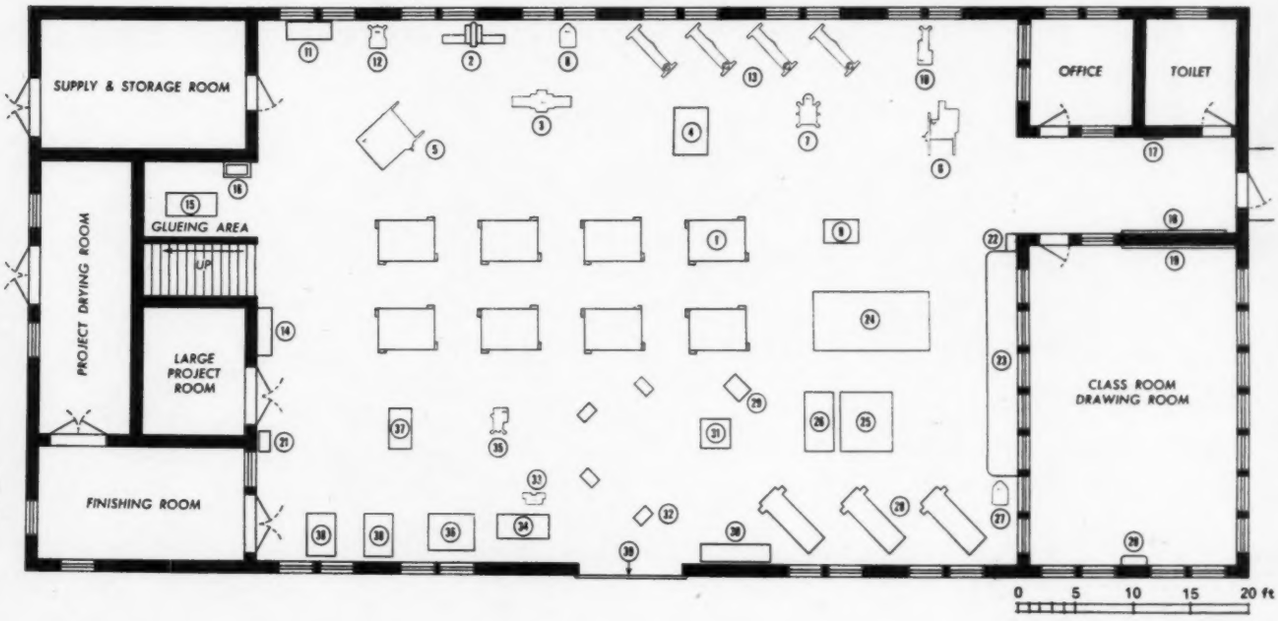
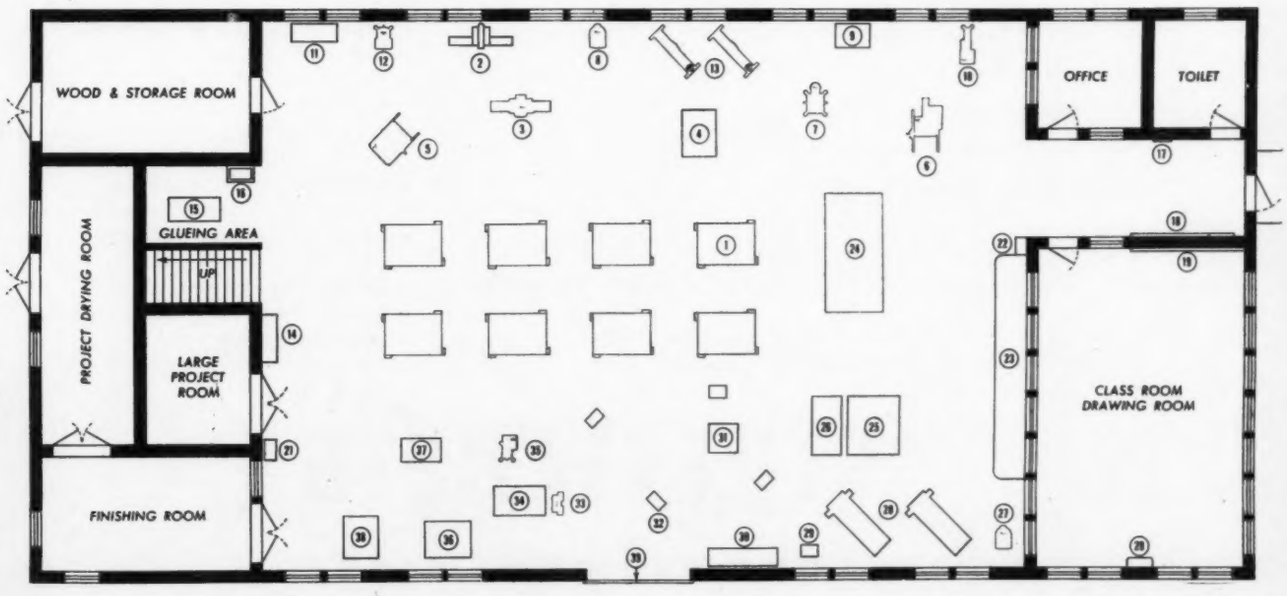
SCHOOL SHOP PLANNING: 1

The following sheets on school shop planning present the award winners for a recent international contest, held at the American Vocational Association Convention, and sponsored by the Delta Power Tool Division of The Rockwell Manufacturing Co. Using the theme "School shops for today and tomorrow," the contest was developed to gather current thinking in the field of shop planning for vocational schools in each of six age-levels of instruction.

Six divisional awards were made, plus a grand award for the plans on this sheet by Anton M. Sevcik, Industrial Arts instructor, El Campo High School, El Campo, Tex. It is a General Shop plan for Senior High School grades 10–12. It is designed for one teacher and simultaneous activities in woodworking, sheet metal, general metal work, electricity and machine shop. Plan at bottom is for 24 pupils, the top one is expanded for 30 or more. Six project storage rooms are on a balcony.



1. 4-Student Work Benches
2. Cut-off Saw (Radial Arm—12″)
3. 8″ Jointer
4. 30″ Planer
5. 10″ Tilting Arbor Saw
6. 20″ Band Saw
7. Shaper
8. 14″ Drill Press
9. Mortising Machine
10. 24″ Jigsaw
11. Belt Sander
12. Disk Sander
13. 12″ Wood Lathe
14. Woodworking Tool Cabinet
15. Gluing Table
16. Janitor's Sink
17. Drinking Fountain Recessed in Wall
18. Bulletin Board
19. Blackboard
20. Washstand
21. Grinder—Slow Speed (Wet)
22. Electrical Panel (Master)
23. Electrical Work Bench
24. Sheet Metal Bench
25. 4′ Sheet Metal Shear
26. 4′ Sheet Metal Break
27. 14″ Drill Press
28. 13″ Metal Lathes
29. Arbor Press
30. Metalworking Tool Cabinet
31. Drill Press (Radial)
32. Anvils
33. Grinder
34. Welding Booth
35. Metal Cutting Bend Saw
36. Milling Machine
37. Power Hack Saw
38. Shaper (Metal)
39. Sliding Door



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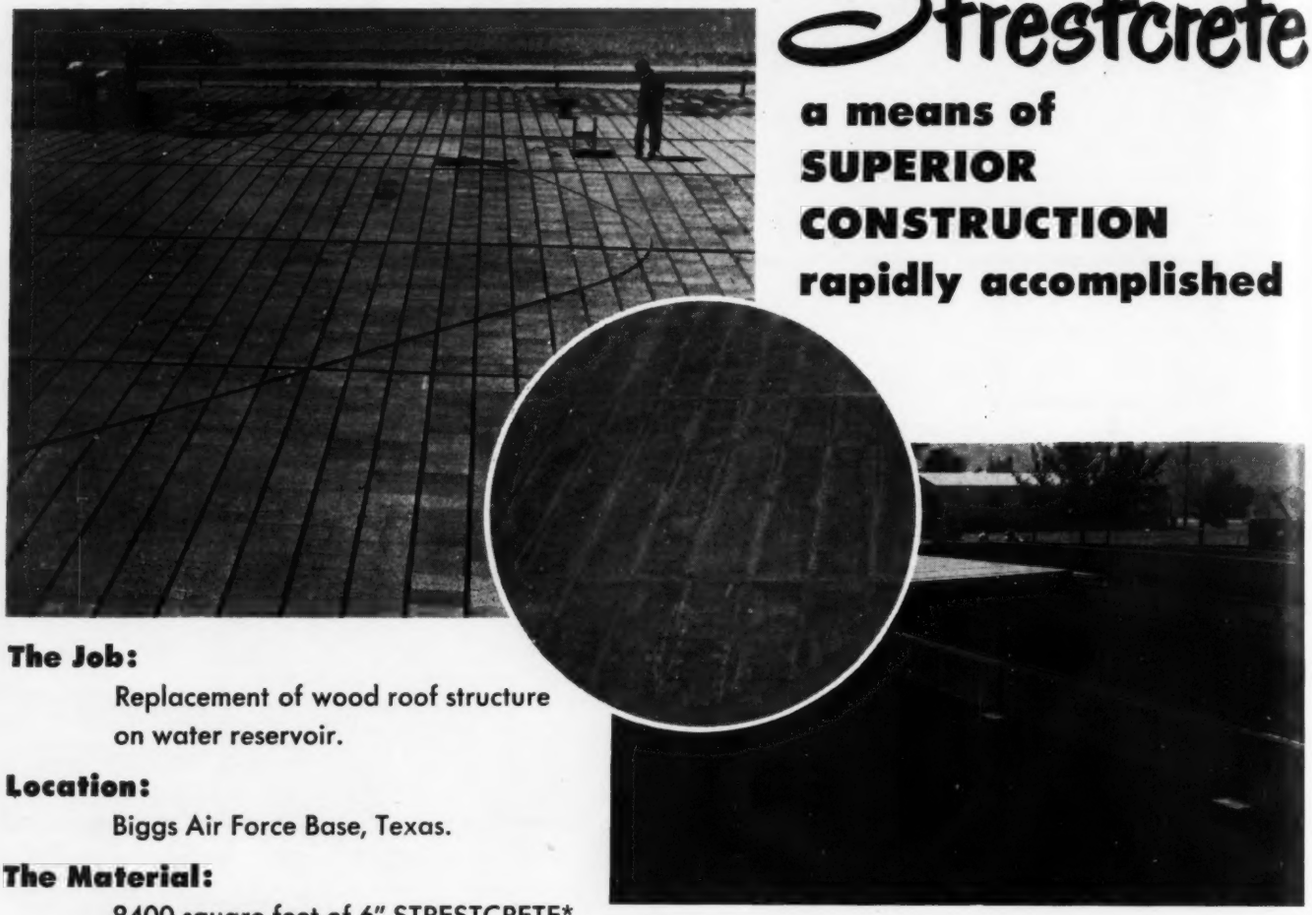

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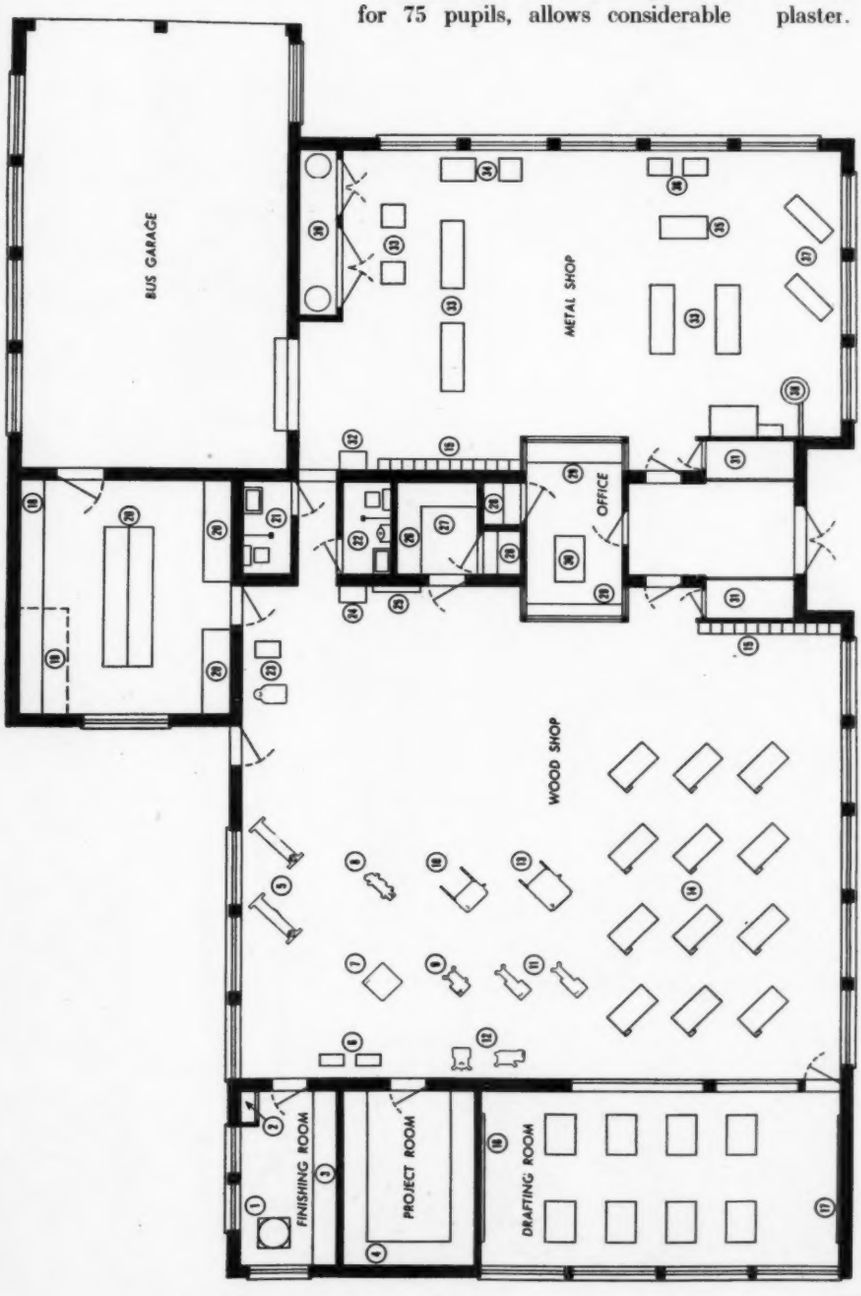
FLOOR and ROOF SLABS

SCHOOL SHOP PLANNING: 2

This divided shop arrangement, designed by E. A. Miller, Instructor of Industrial Arts, Jal Public Schools, Jal, N. M., was given the award for the high school shop division, grades 9–12. The layout provides for woodwork, welding, drafting, crafts and machine shop courses. It was planned for 75 pupils, allows considerable room for expansion. Interior dimensions of the wood shop are 39 by 50 ft; the metal shop is 25 by 42 ft. The shops were designed to occupy a fireproof brick building, with inner walls of lightweight concrete blocks. Floors are concrete, roof is steel decking and the ceiling is of an acoustic type of plaster.



1. Finish Table
2. Cabinet
3. Drying Table
4. Project Storage
5. 12″ Lathes
6. Grinders
7. Shaper
8. 6″ Jointer
9. Band Saw
10. Tilting Table Circular Saw
11. Scroll Saws
12. Band Sanders
13. Tilting Arbor Circular Saw
14. Shop Desk
15. Lockers
16. Blackboard
17. Bulletin Board
18. Wood Storage Rack
19. Overhead Plywood Storage
20. Wood Storage
21. Girls' Rest Room
22. Boys' Rest Room
23. Drill Presses
24. Wash Sink
25. Clamp Rack
26. Tool Panel
27. Tool Storage
28. Shelves
29. Book Storage
30. Desk
31. Project Display Cases
32. Wash Sink
33. Metal Desk
34. Arc Welder
35. Drill Press
36. Grinders
37. Metal Lathes
38. Foundry
39. Generator Room

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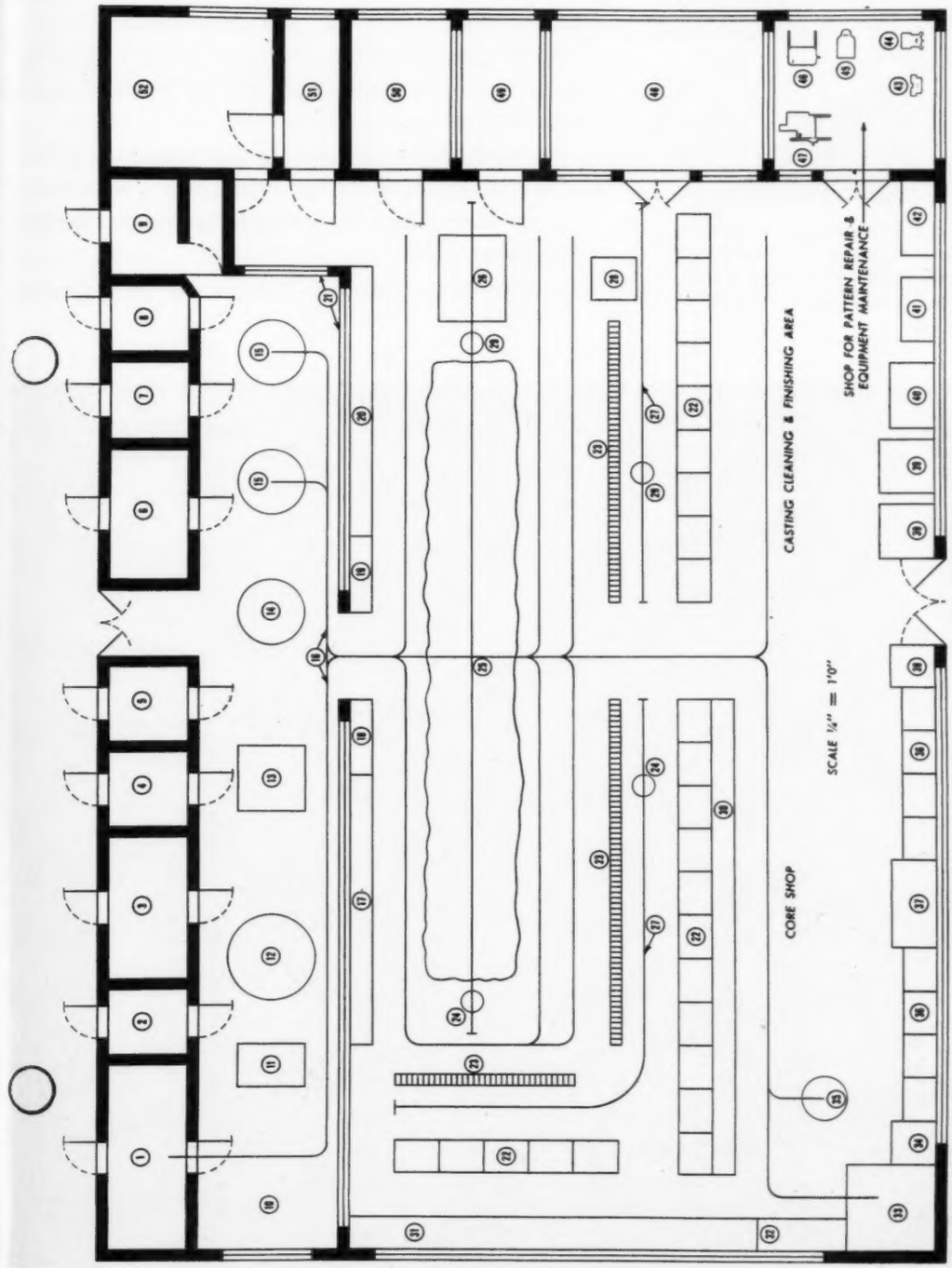
SCHOOL SHOP PLANNING: 3

The award for the technical and vocational high school division was given for this plan for a foundry practice shop, grades 9–14, by Edward Saks, Instructor of foundry practice, Murrell Dobbins Voc. School, Philadelphia, Pa. It was planned for 50 pupils. The plan places all melting units behind a brick and glass wall, and in an area that, while exposed to the instructor's view, confines fumes where they can be readily exhausted. A monorail system serves the entire shop area. Shower and locker rooms are also provided.

The contest jury included: Gilbert G. Weaver, Director of Training for the Bureau of Vocational Curriculum of the N. Y. State Education Dept.; William W. Theissen, Asst. Superintendent, Milwaukee Public Schools; Dr. C. H. Groneman, Head, Industrial Education Dept., Texas A. & M.; Dr. C. C. Caveny, Dean, Chicago campus, Univ. of Ill.; and Hans W. Schmidt, School Building Planning Consultant.



1. Albany Sand Storage
2. Red Clay Storage
3. Coke Storage
4. Limestone Storage
5. Pig Iron Storage
6. Scrap Iron & Steel Storage
7. Fire Brick
8. Non-Ferrous Metals
9. Core Oil, Parting, etc.
10. Storage Space & Work Area for Lining Ladles
11. Annealing Furnace
12. Electric Steel Furnace
13. Electric Induction Furnace
14. Cupola
15. Gas Fired Crucible Furnaces
16. Monorail System for Handling Molten Metal, Flasks and Sand
17. Floor Flask Storage
18. Clamp Rack
19. Gagger Bin
20. Flask Storage
21. Glass above Masonry Base
22. Molding Benches
23. Roller Conveyor
24. Riddle
25. Sand Heap & Floor Molding Area
26. Jolt Rollover
27. Rail for Riddle
28. Squeezer
29. Gyratory Riddle
30. Core Storage, Core Plates, Core Rods
31. Pattern Storage Racks
32. Core Boxes
33. Core Sand Storage
34. Core Blower
35. Core Sand Muller
36. Core Benches
37. Core Ovens
38. Stock Core Machine
39. Sand Blast Equipment
40. Cut-Off Saw
41. Grinder
42. Bench
43. Grinder
44. 12" Disc Sander
45. 17" Drill Press
46. 10" Tilting Table Circular Saw
47. 20" Band Saw
48. Library, Study, Lecture and Visual Aid Rooms
49. Sand Testing Laboratory & Physical Testing
50. Tool Crib
51. Lavatory
52. Shower & Locker Room

"Bigelow Cushionlok for Cluett,

J. STANLEY SHARP of the well-known architectural firm of Ketchum, Gina and Sharp, planned this distinctive modern interior for the new Cluett, Peabody showroom at 2 Park Avenue, New York City.

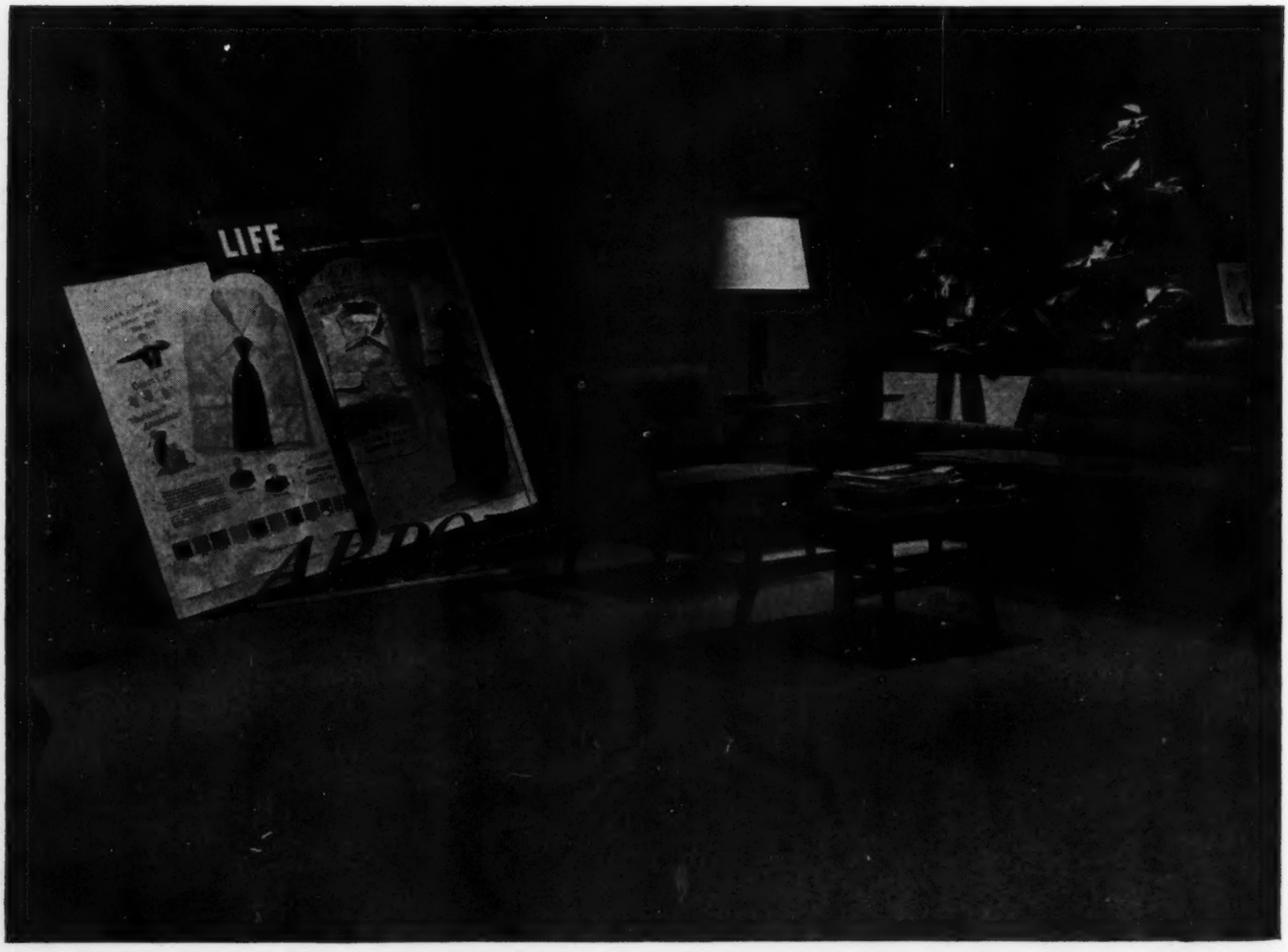
Here's what Mr. Sharp says about the Bigelow carpet he installed:

"For the Cluett, Peabody showroom, we wanted to create pleasant, quiet surroundings that would be conducive to the sale of merchandise.

"We selected Bigelow's Cushionlok carpet because we felt it did an outstanding job in this and other respects.

"Cushionlok absorbs noise and hushes the clatter of voices, giving the quiet surroundings essential in a showroom where hundreds of people are coming and going all day.

"Attractive Cushionlok holds up under heavy



carpet does an outstanding job

Peabody showroom"

says J. Stanley Sharp, noted architect.

traffic and requires a minimum of maintenance. Our contractors like it, too, because of its ease of installation."

Are you planning an installation? Call on Bigelow's experts. Take advantage of their long experience in helping architects select the right carpet. You will find them courteous and helpful.

Get in touch with Bigelow today by calling the sales office nearest you. There is no charge for this service!

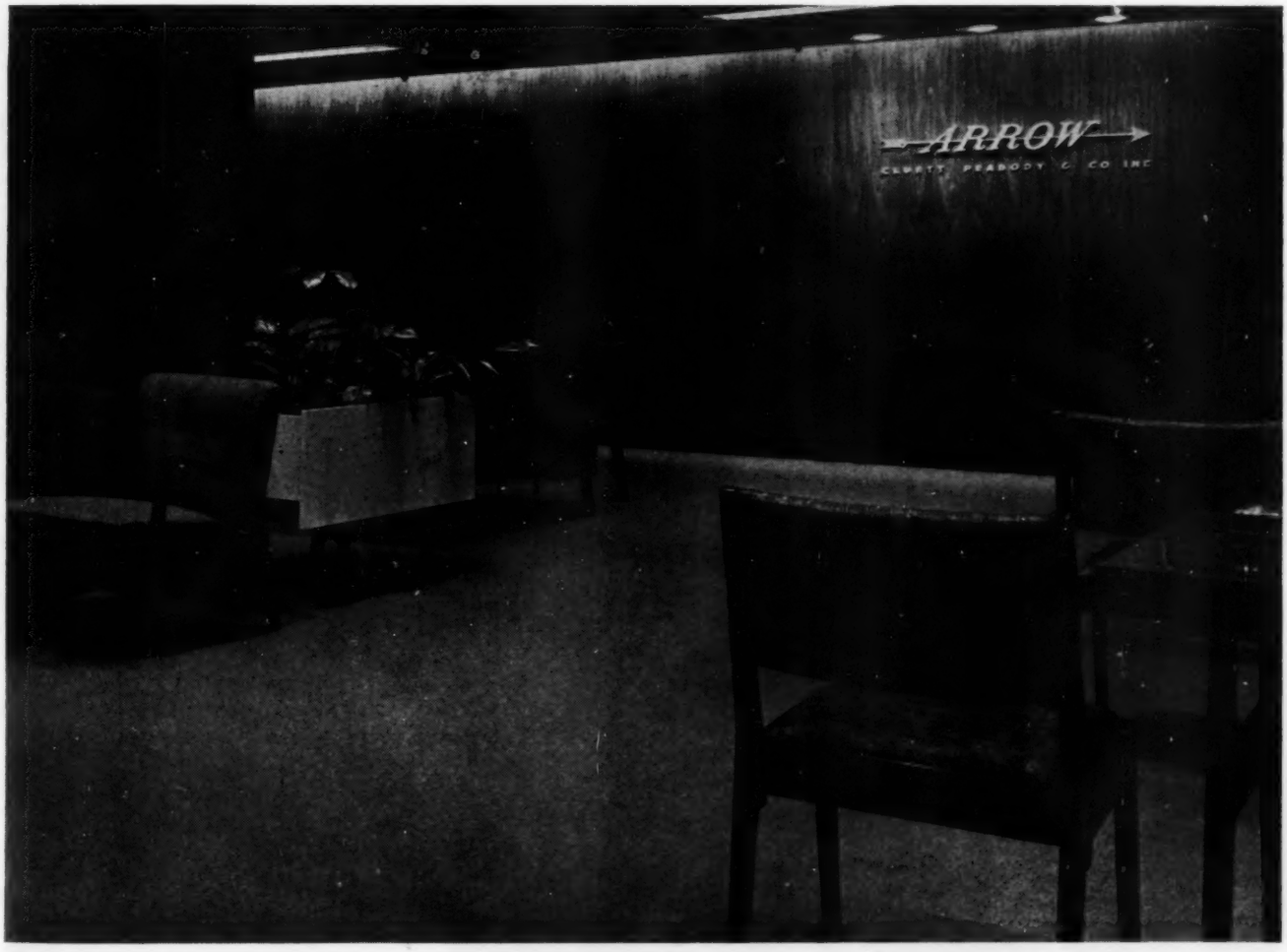
For a sample of Cushionlok, write on your business stationery to: BIGELOW, Dept. A-1, 140 Madison Avenue, New York 16, N. Y.

SINCE 1825
BIGELOW
Rugs – Carpets

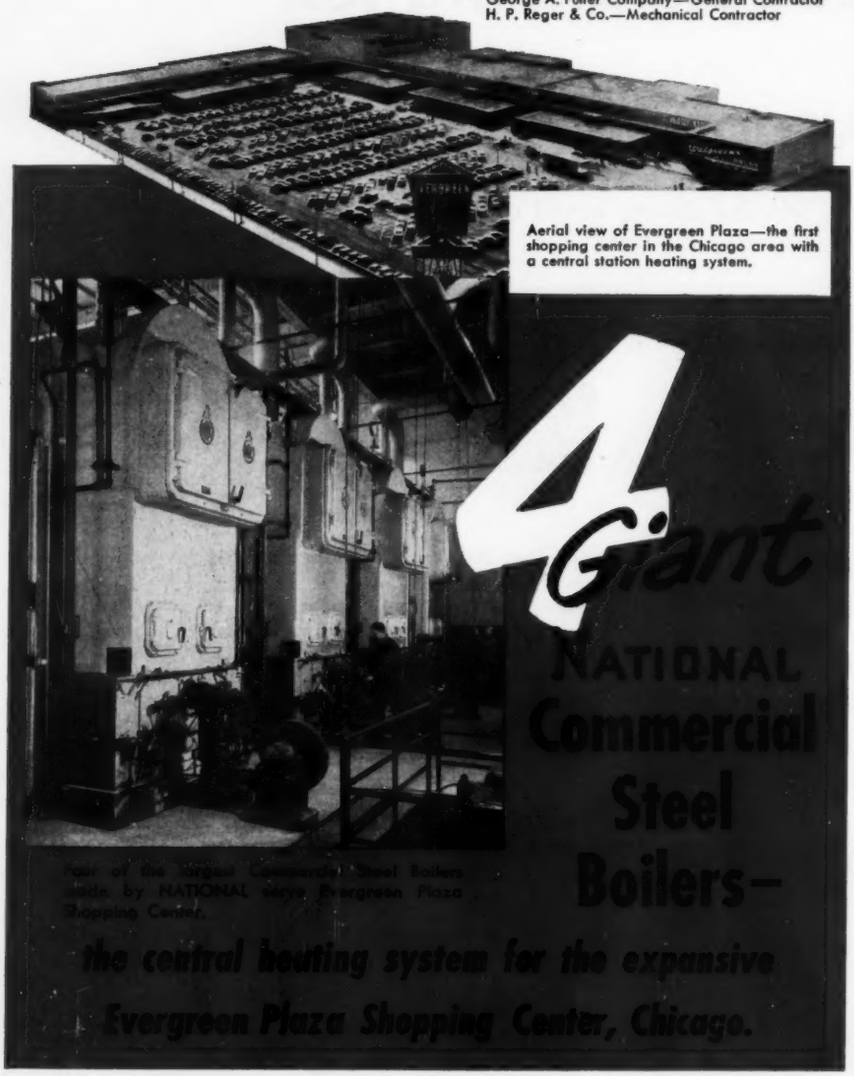
BIGELOW
Rugs and Carpets

Beauty you can see . . .
quality you can trust . . . since 1825

Bigelow sales offices are located in the following strategic cities: Atlanta, Ga.; Baltimore, Md.; Boston, Mass.; Buffalo, N.Y.; Chicago, Ill.; Cincinnati, Ohio; Cleveland, Ohio; Columbus, Ohio; Dallas, Tex.; Denver, Col.; Detroit, Mich.; Indianapolis, Ind.; Kansas City, Mo.; Los Angeles, Calif.; Milwaukee, Wisc.; Minneapolis, Minn.; New York, N.Y.; Philadelphia, Penna.; Pittsburgh, Penna.; St. Louis, Mo.; Salt Lake City, Utah; San Francisco, Calif.; Seattle, Wash.; Hartford, Conn.; High Point, N.C.



Arthur Rubloff—Creator of the Plaza
Howard T. Fisher & Associates, Inc. } Architects
Holabird & Root & Burgee } and Engineers
George A. Fuller Company—General Contractor
H. P. Reger & Co.—Mechanical Contractor



Aerial view of Evergreen Plaza—the first shopping center in the Chicago area with a central station heating system.

4 Giant
NATIONAL
Commercial
Steel
Boilers—
the central heating system for the expansive
Evergreen Plaza Shopping Center, Chicago.

This National multiple boiler installation is the source of year round heating and air conditioning comfort to the 53 rental units in the Evergreen Plaza Shopping Center.

Low pressure steam from these National Boilers is supplied to convectors, radiant baseboard, heating coils and unit heaters—equivalent to 170,000 square feet of direct radiation—through 15 miles of pipe, to heat this $15 million structure's 6,100,000 cubic feet of space. Fully automatic, each of the 53 stores has individual heat distributor controls. Performance has completely satisfied the architects and owners.

Once more, National Boilers are making heating history and demonstrating their engineering excellence and economical operation. Get the full details on National Commercial Steel Boilers.

Write for National Bulletin #507-AR.

THE NATIONAL RADIATOR COMPANY
JOHNSTOWN PENNSYLVANIA

PRODUCTS

(*Continued from page 187*)

respondence came to the attention of the manufacturer and eventually resulted in the construction of a mock-up classroom on the roof of Michigan's engineering research laboratory. This classroom was identical in almost every respect to classroom design for the Hillsdale High School in San Mateo, California, which the architect had on the boards. The mock-up provided Dr. Boyd an opportunity to test the toplight system under classroom conditions and supplied the architect with factual data on the effectiveness of his design.

As finally developed, the system employs hollow glass units, $10\frac{5}{8}$ in. square by 3 in. thick. These are set in insulated aluminum grids and are made weatherproof by pouring a hot tar-and-sulphur compound over the structural ribs. The block units consist of two pieces of glass, between which a sheet of Fiberglas .002 in. thick is sandwiched and a vacuum is then created. The inside of the top piece is formed into prisms designed so that the amounts of daylight and solar heat transmitted into the interior vary with the location of the sun. The bottom piece of glass distributes light to the area below, and the Fiberglas sheet both softens the light transmitted and augments the insulating effect of the vacuum.

During summer months when the sun is at its highest altitude, the prisms in the units reflect as much as 53 per cent of undesirable direct sunlight skyward. In the winter, when the sun is at its lowest, a greater degree of light and solar heat is transmitted. The unit accepts and transmits a high volume of light from the northern half of the sky in all seasons, helping to effect more uniform light transmission throughout the year, low solar heat transmission in hot summer months and elimination of glare. Because of their light-directing design, the panels must be oriented approximately north and south for best performance.

Construction methods for the fabrication of the panels have been developed by the American 3 Way-Luxfer Prism Company and have been job-tested for several years. The panels are reported

(*Continued on page 202*)

New decorative miracle...

Woven Corrulux

Two new Corrulux weaves in six decorator colors

● Combine the translucence of shatterproof Corrulux with the textured pattern of woven fabric and you have — *Woven* Corrulux, the most beautiful decorative panel ever designed! *Woven* Corrulux captures a new, translucent texture and uniformity never before obtained with any other building material. It's perfect for room dividers, bath enclosures, screens, ceilings, light panels, displays, signs and countless other uses.

Woven Corrulux comes in two weaves. *Bold weave* for accent on textures. *Fine weave* for lighting effects.

FREE COLOR IDEA FOLDER

Contains technical details, use suggestions, and color samples. Write for your free copy of the new Woven Corrulux Color Folder today!

LOF Glass Fibers

Corrulux DIVISION LIBBEY•OWENS•FORD GLASS COMPANY

P. O. BOX 20026 HOUSTON 25, TEXAS

Congratulations

TO ARCHITECTS:
Lee Black and Kenneth C. Black
of Lansing, Michigan

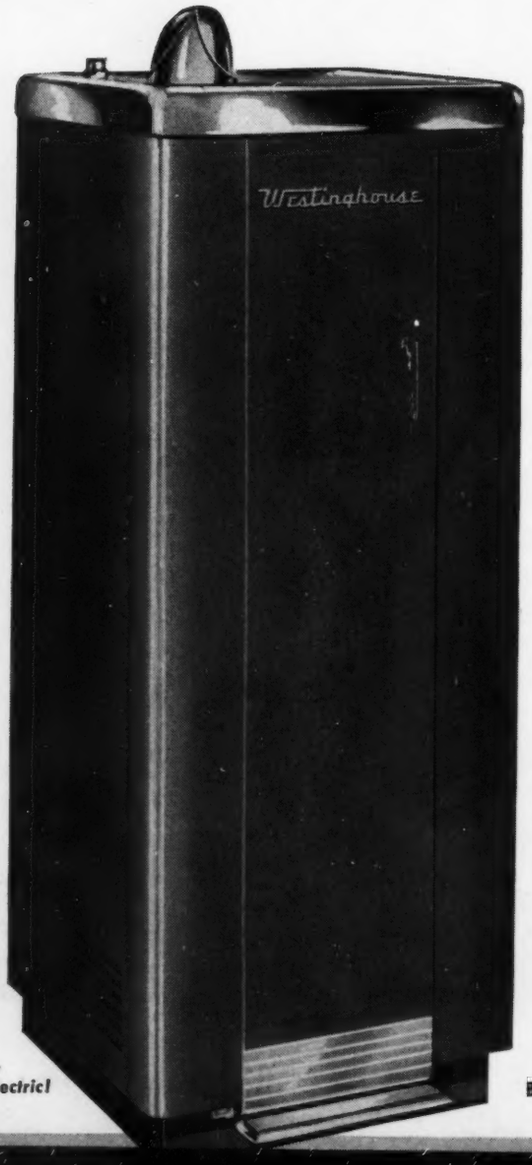
Office Building, Auto-Owners Insurance Company . . . Lansing, Michigan

Modern in every respect, the new office building of Auto-Owners Insurance Company is an architectural triumph for its designers and builders, its owners and the community.

Interiors give full attention to attractiveness as well as utility. Ten Westinghouse Water Coolers contribute to both objectives. Baked-on, blue-grey enamel with stainless steel trim complements the surroundings; and the reliable performance of the Hermetically-Sealed Refrigeration Systems (with 5-Year Guarantee Plan) assures refreshingly cool water for visitors and staff.

In any building, in any location, Westinghouse design and capacities match Water Cooler requirements.

For



WS5A . . . 5-gallon capacity with the new *Super Sub-Cooler* and static condenser. Stainless steel top. Foot-pedal control. Automatic stream-height regulator. Anti-squirt bubbler. 12 other models available with capacities from 1 gallon to 22½ gallons.

WSB3
3-Gallon,
Bottle Cooler

WS8A
8-Gallon,
Air Cooled

WA13A
13-Gallon,
Air Cooled

WA17A
17-Gallon,
Air Cooled

WW14A
14-Gallon,
Water Cooled

of course,
it's electric!

Westinghouse capacities
match water cooler requirements.

This Blue Chip Line includes pressure, bottle and remote types; explosion-proof models; compartment coolers; water-cooled or air-cooled condensers, the latter in the new *Super Sub-Cooler* design for extra efficiency and economy.

capacities range from the 1-gallon Compartment Bottle Cooler to the 22½-gallon, water-cooled unit. The many different capacities provide maximum flexibility to meet the widely varying loads called for by specific conditions and user demands.

match the needs of your clients by checking carefully our Architect's Kit, which is a data file of large-sized, readable and accurate engineering drawings and specifications, obtainable without charge from your nearby distributor. Or consult your Sweet's File, Section 28c/WE.

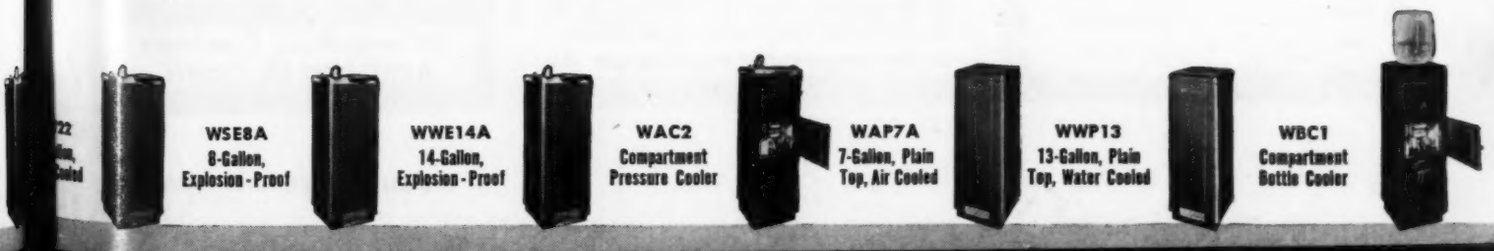
water cooler specialists are always at your service, to help you select equipment for projects now on your boards, and to make sure the water coolers selected are correct as to type and capacity for the load requirements.

requirements of economy, appearance and long-time reliability will be amply met, to your clients' satisfaction, with Westinghouse Water Coolers. For details, call your distributor or write Westinghouse Electric Corporation, 653 Page Boulevard, Springfield 2, Mass.

For water coolers, as for all of our products—

YOU CAN BE SURE... IF IT'S Westinghouse

WESTINGHOUSE ELECTRIC CORPORATION
Electric Appliance Division • Springfield 2, Mass.



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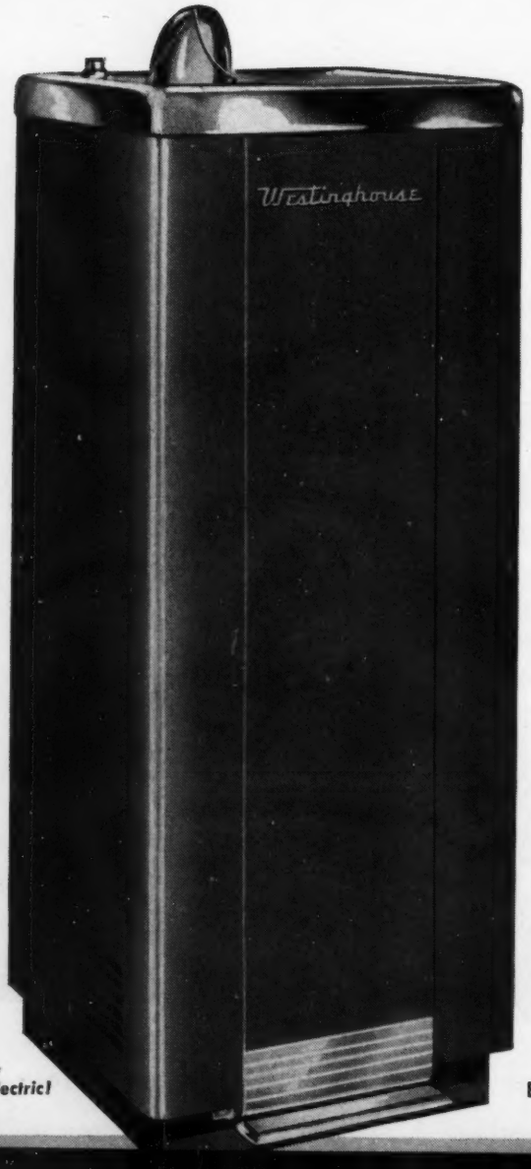
Interiors give full attention to attractiveness as well as utility. Ten Westinghouse Water Coolers contribute to both objectives. Baked-on, blue-grey enamel with stainless steel trim complements the surroundings; and the reliable performance of the Hermetically-Sealed Refrigeration Systems (with 5-Year Guarantee Plan) assures refreshingly cool water for visitors and staff.

In any building, in any location, Westinghouse design and capacities match Water Cooler requirements.



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3-Gallon,
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14-Gallon,
Water Cooled

of course, it's electric!

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For water coolers, as for all of our products —

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PERFECLITE
MODERN DESIGN
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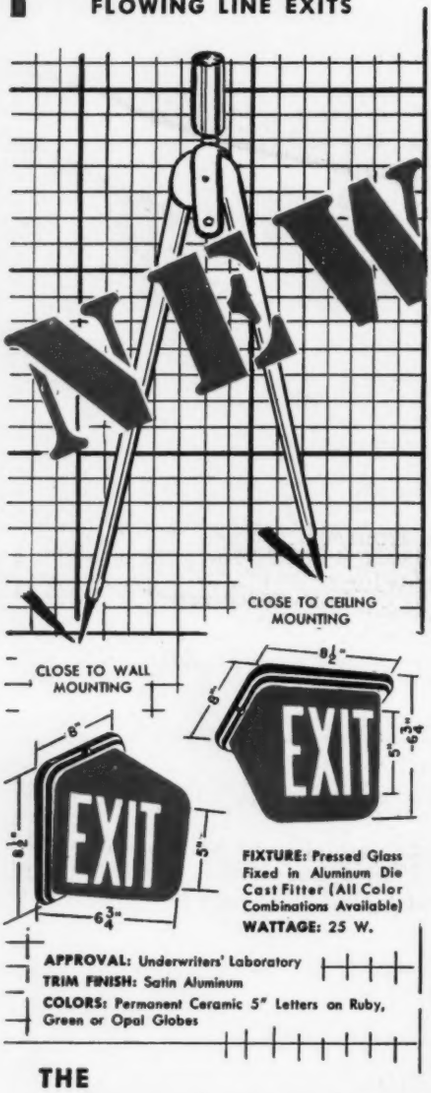
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FIXTURE: Pressed Glass Fixed in Aluminum Die Cast Fitter (All Color Combinations Available)
WATTAGE: 25 W.
APPROVAL: Underwriters' Laboratory
TRIM FINISH: Satin Aluminum
COLORS: Permanent Ceramic 5" Letters on Ruby, Green or Opal Globes

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PLEASE SEND ME
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MAIL TODAY

PLEASE SEND ME DATA SHEET EX-53-A
NAME
ADDRESS
FIRM

PRODUCTS

(*Continued from page 198*)

to have been found weatherproof, since the only exposed materials are glass, aluminum and the tar-and-sulphur sealing compound. The completed panels weigh 16 lb per sq ft and will be made in four stock sizes: 3 by 3 ft; 4 by 4 ft; 4 by 5 ft; and 3 by 6 ft. It is recommended that the panels be installed on curbs and flashed to the roof surface. They should be pitched a minimum of ¼ in. to the foot for proper drainage. Panels may be used singly or in combination. Kimble Glass Co., Div. Owens-Illinois Glass Co., Toledo, Ohio.

Safety Awards Given to Eleven Home Products

Winner of the grand prize for safety in the home, in a program sponsored by the Lewis & Conger Company of New York, was the *Push-Button Pyrene Fire Extinguisher*. Expelling a stream 25 ft long, the extinguisher operates easily by the push of a button. It is compact (holds one pint of vaporizing liquid), attractive

Portable fire extinguisher is light in weight, safe and effective

in appearance, and reasonably priced. Particularly effective on fires caused by gasoline, oil or defective wiring, it is recommended for home garage and automobile use. The 2½-lb extinguisher is constructed of stainless steel and maroon plastic. Pyrene Mfg. Co., Newark, N. J.

• Among other award winners was the *Ruud-Monel Duo-Temp Laundrymaster*, a two-temperature water heater de-

(*Continued on page 206*)

All over the country
PLUGMOLD helps sell homes!

Home owners want Plugmold!

You hear it over and over again from home-buyers and you see it every month in the building magazines—home buyers today insist on plenty of outlets everywhere, for all their lamps and appliances.

Plugmold 2000 is the fastest, easiest, cheapest way to provide multiple convenience outlets in YOUR new homes (or when you're modernizing older homes, too!). It's easily installed — in one long, continuous run — no time-taking, cost-hiking connections between a lot of short lengths.

Plugmold 2000 puts PLUS convenience and PLUS value into all homes . . . it will SELL homes for you! Write today for full information.

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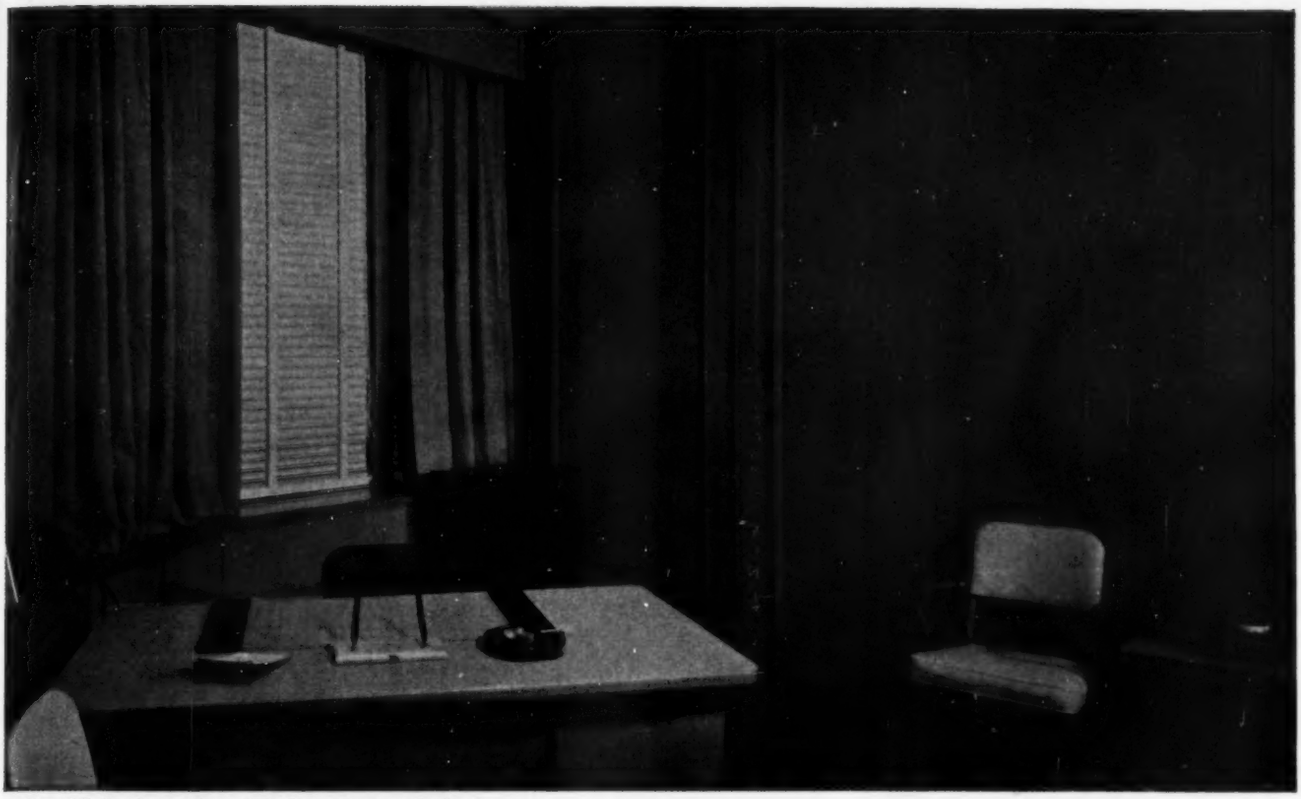

● *One of the handsome offices of The Upson Company, Lockport, N.Y., after decorating according to COLOR DYNAMICS.*

Pittsburgh COLOR DYNAMICS

contributes to greater office efficiency these four ways . . .

1. lessens eye fatigue
2. stimulates concentration and improves efficiency and morale
3. reduces absenteeism
4. simplifies housekeeping problems

NEXT TIME you select color, discard old-fashioned methods and do it the up-to-date way—with Pittsburgh COLOR DYNAMICS.

● **Pittsburgh** has kept pace with modern advancements in office architecture, equipment and management by perfecting this new system of painting which is based upon the *energy in color.* Science has shown that color has a psychological and physical influence upon those who come in contact with it. Some colors cheer or stimulate, others soothe and relax, still others fatigue, depress and irritate.

● **Pittsburgh** has put this knowledge to practical use in COLOR DYNAMICS. With this method you can choose color arrangements that are more than just pleasing to the eye—you select colors that improve efficiency and morale, build loyalty, inspire confidence and trust.

● **With COLOR DYNAMICS** you select the right colors for all types of offices in keeping with their purposes, their exposure to sunlight and their natural and artificial lighting.

● **You lessen eye-strain,** stimulate concentration, promote the comfort and well-being of those who work in these offices. Because of the greater pride workers take in such surroundings they take extra pains to keep their quarters neat and clean, thus reducing housekeeping and maintenance problems.

● **Why not discover** for yourself how you transform the offices you plan or build into a business asset that lends prestige to their tenants and the goods or services they sell?

LET US MAKE A COLOR DYNAMICS ENGINEERING STUDY FOR YOU—FREE!

● For a complete explanation of COLOR DYNAMICS and what it can do for the offices you plan or build, send for our *free* booklet containing many practical suggestions. Better still—we'll gladly make a color engineering study of your building, or any portion of it, *without cost or obligation.* Just call your nearest Pittsburgh Plate Glass Company branch and arrange to have one of our trained color experts see you at your convenience. Or send this coupon.

SEND FOR A COPY OF THIS BOOK!

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☐ Please send me a FREE copy of your Booklet *"Color Dynamics."*

☐ Please have your representative call for a Color Dynamics Survey without obligation on our part.

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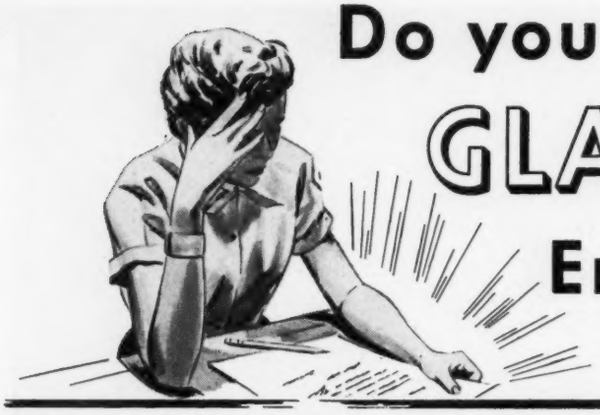

Do you make this GLARING Error?

Litecontrol's Simple Solution

Providing adequate illumination is only part of any lighting problem. Harsh contrasts can easily turn a good installation into a glaring error.

In this office, LITECONTROL uses its fixture No. 3700 with Holophane low-brightness CONTROLENS to furnish the right light — yet eliminate all glare and sharp contrasts. Seeing is relaxed and easy at every point in the room.

Extremely shallow, this smart "surface troffer" fixture is only 4¼" deep. *Trigger Catches* open and close doors *at the snap of your fingers.* No screws or adjustments of any kind necessary.

On your next project, plan on having a better lighting installation, too, at *standard* fixture costs — call in your local LITECONTROL man.

LITECONTROL FIXTURE SERIES 3700

EASY TO OPEN, just a touch on the LITECONTROL Trigger Catches and doors spring conveniently open. No screws or adjustments necessary.

EASY TO CLOSE, simply push the LITECONTROL door shut. Trigger Catches snap and grip instantly, safely, dependably.

Installation: Honey-Krust Bakery, Lexington, Kentucky; **Area:** Office; **Engineer:** J. T. Cole, Lighting Engineer, Kentucky Utilities Company, Lexington, Kentucky; **Electrical Contractor:** Clyde Johns, Lexington, Kentucky; **Fixtures:** No. 3728 2-lamp surface fixture, using Holophane No. 9016 Low Brightness Lenses, and 96T12 slimline lamps. No. 3724 fixture, same, but with 48T12 slimline lamps; **Spacing:** 8'-6", **Intensity:** Average 62 footcandles, after 2½ months of operation.

LITECONTROL *Fixtures*

LITECONTROL CORPORATION

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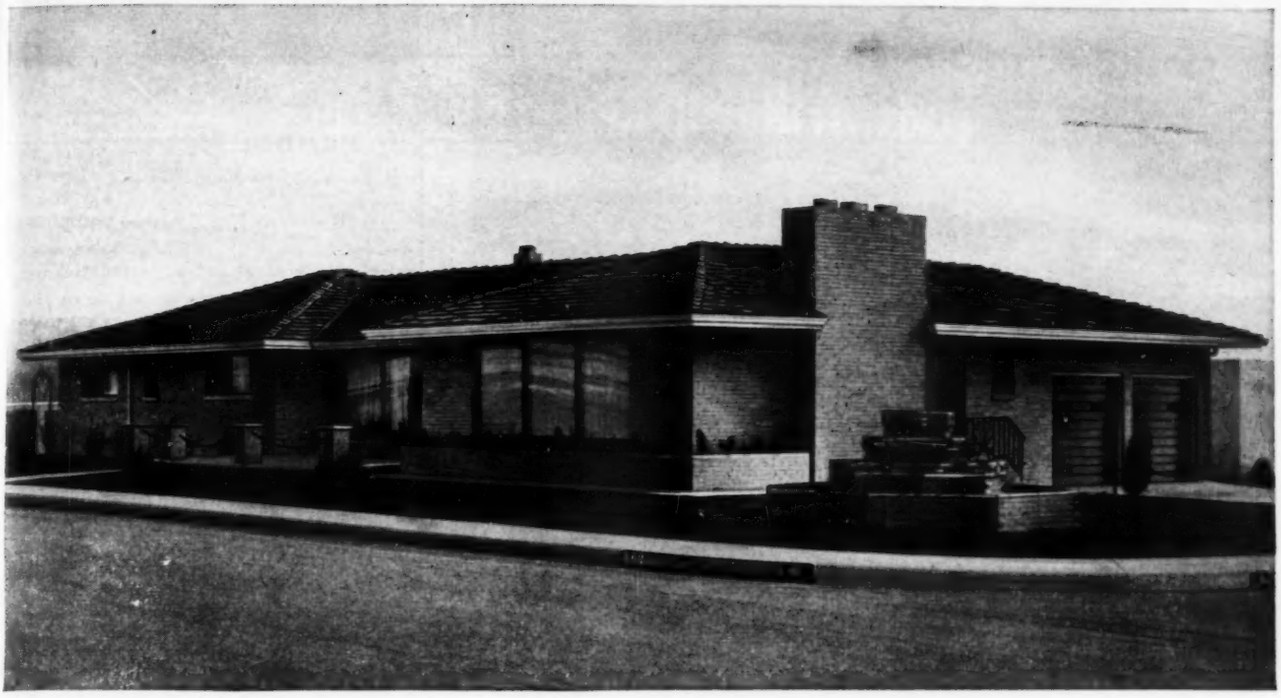
DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS



"Maximum *LIVABILITY*, maximum *SALABILITY*... in SERVEL AIR-CONDITIONED 'Miracle' Home"

A. I. Rowen, Albuquerque, New Mexico

When Mr. A. I. Rowen designed and built this new "miracle" home in Albuquerque, New Mexico, his aim was to produce a home with maximum living comfort. He specified Servel equipment to provide cooling, heating and air conditioning the year 'round. Its enthusiastic acceptance during the open-house period has convinced Mr. Rowen (like many other architects) that Servel *All-Year* Air Conditioning *sells homes.*

A. I. Rowen

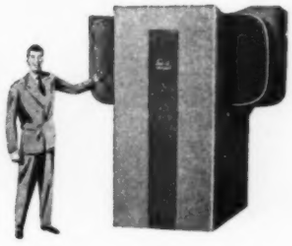
Because Servel's unique absorption system requires *no moving parts* in cooling or heating unit, operation is quiet, dependable, economical.

Home buyers, builders and architects alike prefer Servel—there are more Servel *All-Year* Air Conditioners in the homes of America than any other make. Superior design, moderate first cost and outstanding operating economy are a few of the many reasons why.

The complete range of models, from 2-ton to 25-ton cooling capacity, gives architects Servel equipment to meet all air-conditioning needs—residential, commercial and industrial.

Investigate Servel All-Year Air Conditioning—and its many advantages! Mail coupon for complete information.

HEATS AND COOLS WITH GAS OR OIL



Servel

the name to watch for great advances in

AIR CONDITIONING ✓ REFRIGERATION

SERVEL, INC., Dept. AR-7, Evansville 20, Indiana

Send me more information about Servel Air Conditioning for

☐ Homes ☐ Commercial installations ☐ Industrial use

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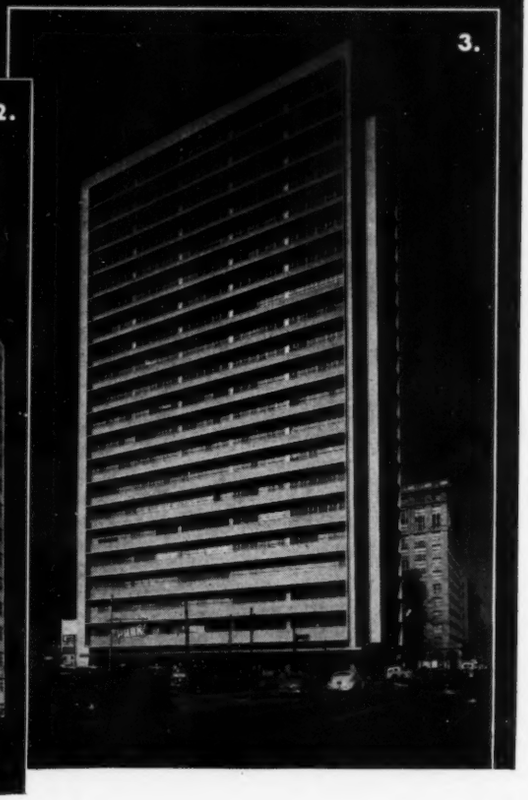
Modern Buildings That Will Never Grow Old



Pictured above are three of the newest and finest office buildings in America . . . Lever House in New York City, the First National Bank of Tulsa, and the Melrose Building in Dallas. Each of these splendid monuments to free enterprise has been carefully designed and constructed to avoid future obsolescence and withstand the ravages of time.

One of the features common to these buildings is the fact that each has been built with Q-Floor, the strong, lightweight, steel, cellular structural floor . . . the only construction system that provides easy electrical access to every 6-inch area of the entire exposed floor. They will never become obsolete for a lack of ability to keep pace with the increasing use of movable partitions and modern electronic office equipment, because wiring layout changes and additions will always be available at maximum speed and minimum cost.

For other excellent reasons why more and more fine new buildings everywhere boast Q-Floor construction, see the opposite page.

1. Lever House—New York City
Skidmore, Owings & Merrill—Arch.
George A. Fuller Co.—Contractor

2. First National Bank of Tulsa
Carson & Lundin—Architects
Manhattan Construction Co.—Contr.

3. Melrose Building—Houston
Lloyd & Morgan—Architects
Tellepsen Construction Co.—Contr.

Robertson

Q-Floor

a product of **H. H. Robertson Company**
2404 Farmers Bank Building • Pittsburgh 22, Pa.
Offices in All Principal Cities **World-Wide Building Service**

PRODUCTS

(*Continued from page 202*)

signed to provide extra hot water for appliances, yet prevent scalds from the faucet. Ruud Mfg. Co., Pittsburgh 1, Pa. (see ARCHITECTURAL RECORD, p. 212, Dec. 1952)

• The *Waring Mixor* won an award for outstanding safety features which include a specially designed rotary action switch with no open slots, shielded at all speed positions against seepage or infiltration of foreign substances which might cause short circuits. The hand-mixer has beaters with convex blades, eliminating sharp edge contacts which often result in breakage of mixing bowls. Waring Products Corp., New York, N. Y.

• The *Heatmore Radiant Ceramic Heater* employs a ceramic panel to house the heating element, banishing fire and burn hazards, shock and short circuits. The portable heater may be plugged into any electric outlet. Heatmore, Inc., New York, N. Y.

• The *Edco Delayed-Action Light Switch* works like a regular switch, but when the toggle is snapped to the "off" position, labeled "Delay," the light stays on long enough to let the operator walk from 40 to 50 ft before going out. Electric Deodorizer Corp., Detroit 4, Mich.

• Another award winner was the *Superlight Magnesium Step Ladder*, constructed of Whitelight Magnesium, reported to be ⅓ lighter than aluminum, and to be the strongest structural metal (on the basis of weight) now in use. According to tests, the ladder will support up to 800 lb. White Metal Corp., Brooklyn, N. Y.

• A *Spin-Free Safety Knob* is a new device for the kitchen range which eliminates the danger of accidentally turning on the burners. Spinning freely at the slightest touch, it does not turn the gas on unless firmly pressed to mesh with an inner plastic disk. The Patent Button Co., Knoxville, Tenn.

• Other products to win awards were the *North-East Jalousie Window*, made

PRODUCTS

solely of glass and aluminum by the North-East Metal Products Corp, Inc., Merrick, N. Y.; the *Queen Reach-it Step Stool*, a one-step stool that cannot tip over due to its pyramidal construction. Queen Mfg. Co., Chicago, Ill.; the *Safe-way Steel Wool Holder*, a handle with a grip for attaching a steel wool pad, protecting the hands. Safeway Specialty Corp., New York, N. Y.; and the *Fire-larm*, a simple gadget which rings an automatic alarm whenever the temperature reaches the danger point. R. J. Schuler Assoc., Grosse Pointe Branch, Detroit, Mich.

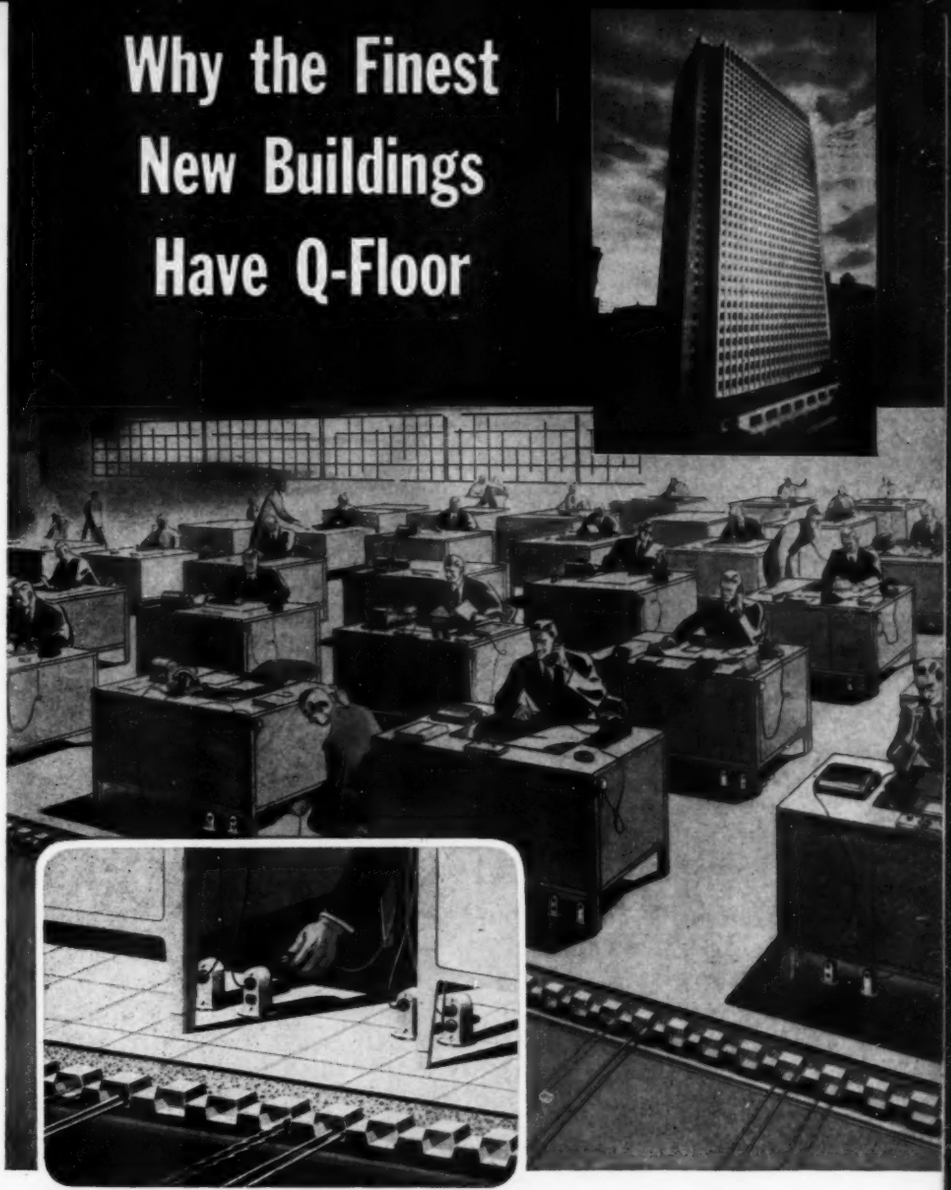
Glass jalousie window affords complete safety from accidental falls

Jalousie Windows with Extruded Aluminum Frames

A new *Win-Dor* extruded aluminum framed jalousie unit is now being marketed. Designed to be used singly, in mullioned series, or integrally with fixed glass areas such as picture windows, the unit is composed of a heavy extruded aluminum frame, the manufacturer's patented hardware, stainless steel weatherstripping and slats or louvers of either glass or wood. The louvers are controlled with an operator which automatically locks them in any position and works through inside screens or storm sash. The jalousies are furnished in standard sizes, and may also be assembled for enclosures as required. Casement Hardware Co., 612 N. Michigan Ave., Chicago 11, Illinois.

(*Continued on page 210*)

Why the Finest New Buildings Have Q-Floor



Beyond the fact that Q-Floor offers the greatest electrical availability of any structural floor in existence (as indicated on the page opposite), there are several other decisive reasons why it has become a part of the finest new buildings in America.

Q-Floor saves construction time and money. The steel cellular units come on the job cut to fit so that two men can lay 50 square feet in one minute. In the case of the U.S. Steel-Mellon Bank Building in Pittsburgh, forty floors were installed in four months. Because Q-Floor provides a perfect platform for work and storage, 1,000 men were able to operate on the job without interfering with each other. Q-Floor saves steel as a result of its favorable ratio of weight to strength. Footings and structural steel can be lighter than with ordinary construction. Moreover, Q-Floor saves drafting room time since completely predetermined wiring and mechanical layouts are not necessary. Because no combustible forms and shoring are required, there has never been a construction fire on a Q-Floor job. Add these features to low cost on wiring changes in the years to come, and it's easy to see why Q-Floors are a feature of America's finest new buildings.

The Robertson Technical Library contains data books on Q-Floor which should be part of every architectural and engineering library. Write to us.

Shown above: U. S. Steel-Mellon Bank Bldg.—Pittsburgh
Harrison & Abramovitz—Architects
Turner Construction Co.—Contractor

Robertson

Q-Floor

a product of **H. H. Robertson Company**

2404 Farmers Bank Building • Pittsburgh 22, Pa.

In Canada: Robertson-Irwin Ltd., Hamilton, Ontario

In England: Robertson Thain Ltd., Ellesmere Port, Cheshire

Architectural Weldwood

. . . from the Nations of the World —for the UNITED NATIONS BUILDING

On the right you see an interesting application in the United Nations building of American walnut Weldwood and matching Weldwood Fire Doors. The facing veneer for the doors came from the same flitch used for the attractive paneling.

Exotic golden narra Weldwood paneling from the Dutch East Indies lines the entrance of the General Assembly Hall of the United Nations.

Among the types of Weldwood paneling in the United Nations building are Figured Korina from the Belgian Congo and walnut from America. Woods from many nations are represented and include birch, oak, prima vera and lacewood.

Rich-figured blond Korina® Weldwood from the Belgian Congo with matching Weldwood Fire Doors adds distinctive beauty to this office of an Assistant Secretary General. Korina is offered exclusively by United States Plywood.

In the office of the President of the U. N. General Assembly is this handsome example of American walnut Weldwood. The Weldwood Fire Doors are also faced with walnut veneer. All Weldwood in the U. N. is fire resistant.

Weldwood paldao Paneling with matching Weldwood Fire Doors makes a beautiful wall in the conference room of one of the Assistant Secretaries General of the United Nations. This striking wood comes from the Philippine Islands.

When plans call for rich beauty and distinction there are over 100 fine Weldwood Hardwoods from which to choose

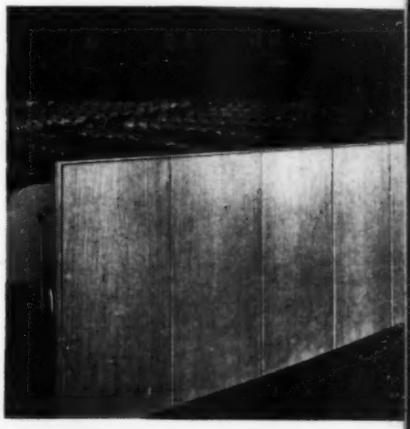
The trend is towards genuine wood wall paneling and away from ordinary wall surfaces that need frequent redecoration. Architects are increasingly turning to the rich beauty and quiet dignity of wood, and are specifying Weldwood architectural grade hardwoods for the finest installations in offices, institutions, government buildings, stores and fine homes.

A great many varieties of Weldwood Hardwoods in a number of sizes and constructions are available. The assortment includes a vast selection of woods in the superb Algoma grade. These panels are in stock in our many warehouses, as are doors in many of these woods.

When sequence-matched panels are required, they can be made to order from veneer flitches selected by the architect; in the case of some woods such sequence-numbered panels are frequently carried in stock. When custom-made panels are ordered, it is possible to obtain doors from the same flitches, and therefore have a completely matched installation of doors and paneling.

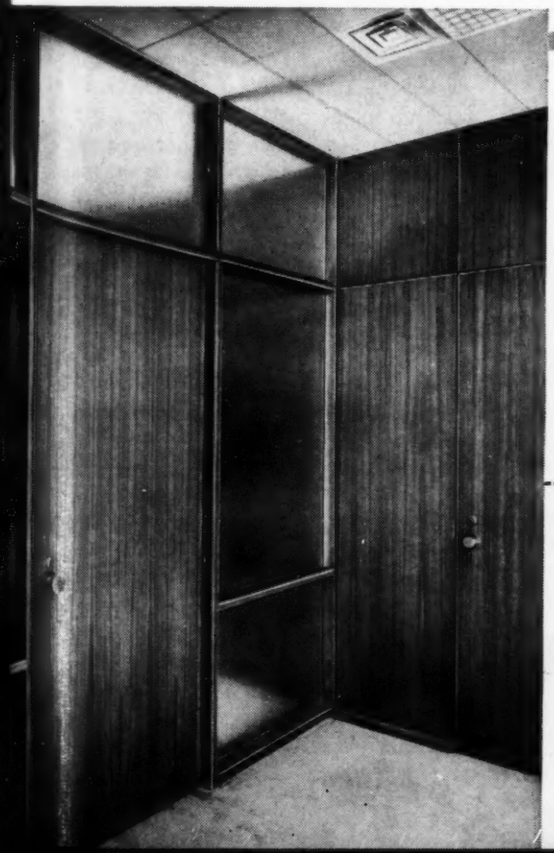
Weldwood Architectural Paneling can be obtained with *fire-resistant* cores, carrying the Underwriters' Label.

Through United States Plywood's nation-wide architectural veneer service, samples of veneer flitches may be inspected. Merely contact your nearest United States Plywood branch manager. Architects near New York are invited to use the facilities of our New York veneer room in the Weldwood Building.



Another use of Weldwood Paneling is shown by these golden narra railings in the General Assembly Hall. All Weldwood paneling for interior use is guaranteed for the life of any building.

Architect: Wallace K. Harrison, Director of Planning. Weldwood Paneling installed by: Murray Hill Woodworking Corp.



Weldwood®

Weldwood®

United States Plywood Corporation · World's Largest Plywood Organization

Weldwood Building, 55 West 44th Street, New York 36, N. Y. and

U. S.-Mengel Plywoods, Inc., Louisville, Kentucky

DISTRIBUTING UNITS IN ALL PRINCIPAL CITIES · WAREHOUSES IN CHIEF TRADING AREAS · DEALERS EVERYWHERE

United States Plywood Corporation, **AR-7-53**
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FREE: Please send me 32-page booklet "Construction Details and Specifications of Architectural Grade Weldwood panels."

NAME.....

ADDRESS.....

CITY.....

STATE.....

PRODUCTS
(*Continued from page 207*)

EQUIPMENT FOR HIGHWAY RESTAURANTS

Among new accessories for the preparation and serving of food in highway restaurants are the following products:

• *The Sedgwick Electric Roto-Waiter* is available to serve two or more landings,

Sedgwick Electric Roto-Waiter

for electric or manual operation. The dumbwaiter may be obtained in three standard counterweighted sizes for three capacity loads, 200, 300 or 500 lb. It is reported to be easy to operate, compact and readily installed. It is also said to be durable and economical. The dumbwaiter has been installed in the Howard Johnson restaurants on the New Jersey Turnpike and in the Tucson-Biltmore Motel in Tucson, Ariz. Sedgwick Machine Works, Inc., 80 Eighth Ave., New York 11, N. Y.

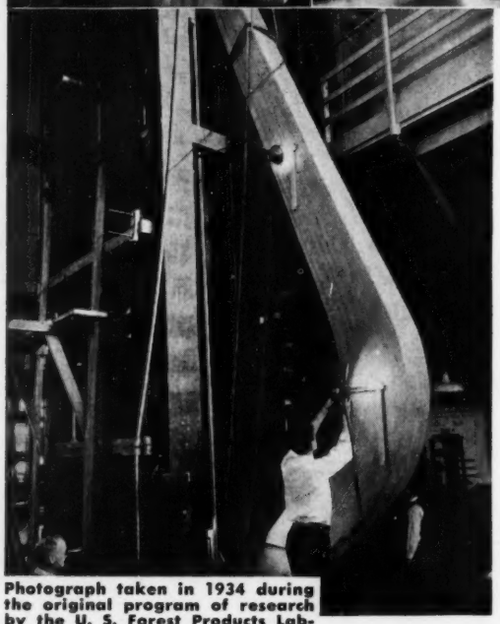
• The *Fearless "44" Dishwasher* is designed primarily for restaurants serving from 50 to 300 persons per meal. Featuring an exclusive wash action provided by vibrationless motor-pump unit, the dishwasher also has a power rinse spray

Fearless "44" Dishwasher

designed to rinse interiors of cups, glasses and bowls which are placed bottoms up in the rack. No moving parts are required to distribute either wash or rinse sprays. Gas, electric or steam booster heaters for the rinse water can be furnished. Fearless Dishwasher Co., Inc., 175–179 Colvin St., Rochester 2, N. Y.

• For short order food service preparation, a new *Stanley Knight Short Order Food Service Assembly* has been introduced. The 11-ft 6-in. combination of units contains a 3-ft 10-in. refrigerated short order unit, a 5-ft equipment stand designed for grills, open burners and French fryer, and a 2-ft 8-in. hot food unit for gas or electricity in either water pan or dry type heat. The refrigerator unit provides for sandwich preparation with cold pans for storage of sandwich

(*Continued on page 214*)



Photograph taken in 1934 during the original program of research by the U. S. Forest Products Laboratory, Madison. Glued, laminated arch frames built of "stress-graded" southern yellow pine by Unit Structures, Inc. were tested to destruction and furnished the basic data for acceptance of laminated, glued wood structural units by the construction industry.

FIRST of Its Kind
and still first in economical construction
UNIT
All-glued Laminated Arches

To the design engineer, the decisive advantage of the laminated arch is measured in dollars and cents — low initial cost, low installation cost, no decorating expense, and the very minimum of maintenance.

These savings, plus increased freedom in building design, are identified with all types of Unit laminated structures. They are a matter of record in hundreds of buildings from coast to coast.

The foundation for this most economical method of roof construction was laid back in 1934 when Unit Structures produced the first all-glued, laminated arches accepted for the building industry by the U. S. Forest Products Laboratory. This pioneer leadership in experience and manufacturing facilities is yours to draw on and work with. See SWEET'S catalog for basic arch information; and write, without obligation, for detailed technical information on any specific problem.

UNIT STRUCTURES, INC. PESHTIGO, WISCONSIN

UNIT STRUCTURES, INC.
500 Peck Avenue Peshtigo, Wisconsin

To get better prints... faster

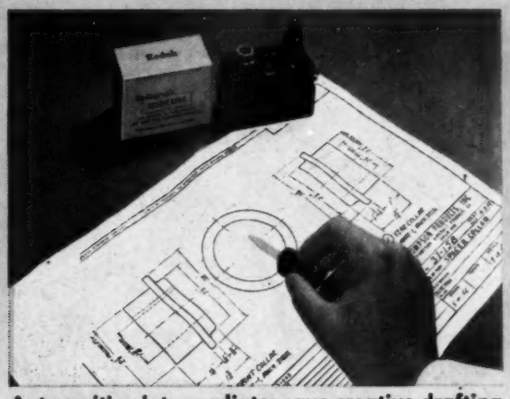
Tapco Plant, Thompson Products, Inc. uses Kodagraph Autopositive intermediates in print production.

The Tapco Plant knows full well that illegible shop prints pave the way for costly reading errors; knows, too, that Kodagraph Autopositive intermediates are low-cost insurance against such a possibility.

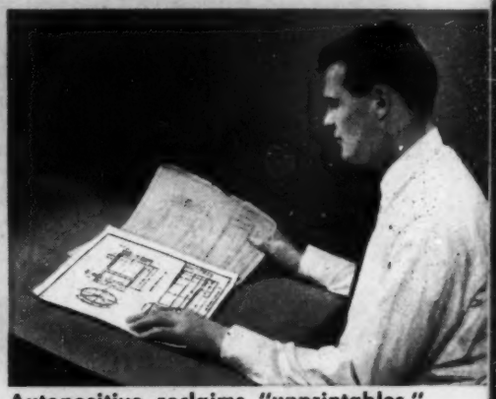
It therefore reproduces its more critical and complex jet and valve drawings on Kodagraph Autopositive Paper Translucent and thus obtains—quickly and easily—sparkling "masters" for print-making which have dense photographic black lines on an evenly translucent, premium-quality paper base; *which* will produce highly legible whiteprints time after time at *stepped-up* machine speeds.

Extremely fine-detailed drawings are reproduced on Kodagraph Autopositive Film, which captures the faintest detail . . . keeps close lines from "filling in". . . and produces top-quality photographic intermediates which have extremely fast print-back speeds.

No negative step . . . no darkroom handling. Kodagraph Autopositive Paper and Film are handled in exactly the same manner . . . produce positive photographic intermediates *directly*. First, they are exposed in one of the Tapco Plant's direct-process machines—or in a photocopy unit. Then, they receive standard photographic processing. A fast, convenient room-light operation all the way. And no new equipment needed.



Autopositive intermediates save creative drafting time. Tapco Plant makes necessary changes in its basic designs without costly redrafting by (1) making Autopositive prints of the original drawing; (2) removing the unwanted detail from the Autopositive reproduction with eradicator fluid. Then, the draftsman has only to add the new detail . . . and a print-making master is ready. *One* which will produce highly legible prints without confusing "ghost" images in the eradicated area.



Autopositive reclaims "unprintables." Many old drawings that have lost line density or are soiled or torn are transformed into print-making masters by reproducing them on Autopositive Paper or Film. Stains and erease marks are dropped out . . . weak detail is made more legible—saving hours of redrafting. Autopositive Paper is also used to duplicate a variety of office records, non-translucent vendor prints, etc.

Kodagraph Autopositive Materials

"THE BIG NEW PLUS" in engineering drawing reproduction

Write today for a free copy of "Modern Drawing and Document Reproduction." It gives complete details on the revolutionary line of Kodagraph Reproduction Materials, which you, or your local blueprinter, can process conveniently, economically.

MAIL COUPON FOR FREE BOOKLET

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Industrial Photographic Division, Rochester 4, N.Y.

Gentlemen: Please send me a copy of your illustrated booklet giving the facts on Kodagraph Reproduction Materials.

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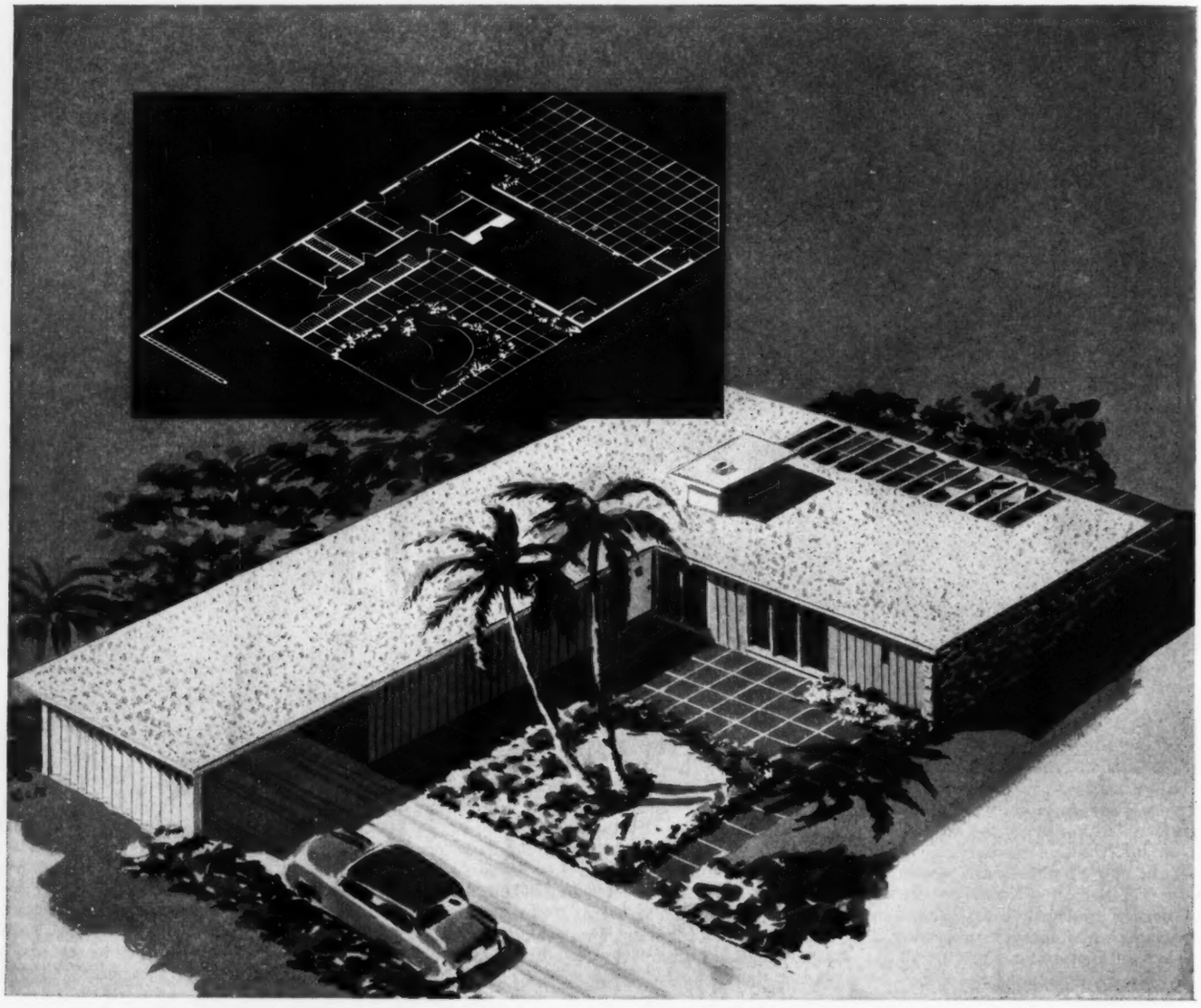
Kodak
TRADE-MARK

G-E HEAT PUMP offers NEW

G.E.'s new All-Electric year-round air conditioner cools without water and heats without burning fuel... enables architects to design homes for a better way of life



L-SHAPED HOME BY GEORGE COOPER RUDOLPH ASSOCIATES has no windows on two walls since window ventilation is unnecessary in a heat pump home. Note air intake and exhaust louvers on the attractive roof cupola. Rudolph architects were enthusiastic about unusual design flexibility afforded by G-E Heat Pump.

FLOOR PLAN OF RUDOLPH HOME shows extreme simplicity of design and construction. Supply ductwork is located in furred-down halls and simulated beams, return ducts in crawl space. Placement flexibility of heat pump utility room allowed short duct runs, easier functional arrangement of interior space.

HEAT PUMP

ALL-ELECTRIC YEAR-ROUND AIR CONDITIONER

FREEDOM in HOME DESIGN

NO FUEL STORAGE—NO COOLING TOWER. The G-E Heat Pump is a self-contained electrical unit—no need to plan space for fuel storage or fuel lines. Since this packaged unit uses no water, it's a natural for water-scarce areas. There's no extra plumbing or water corrosion to worry about—and no bulky cooling towers to mar the landscape.

HOW IT WORKS. For winter heating, the electrically driven heat pump extracts heat from outdoor air, delivers it indoors to heat the building. In summer, it extracts heat from inside air, pumps it outside.

PUT FIREPLACES ANYWHERE. Furnace flues are unnecessary—G-E Heat Pump makes them obsolete. Utility room ventilation is not required since *All-Electric* G-E unit needs no combustion air. Fireplaces, if desired, can be placed anywhere on plan—there's no need to tie in with a heating plant.

ORIENT FOR VIEW ONLY. You can plan your building to take full advantage of the natural beauty of the area. You have more freedom in planning unrestricted glass areas for the best possible view.

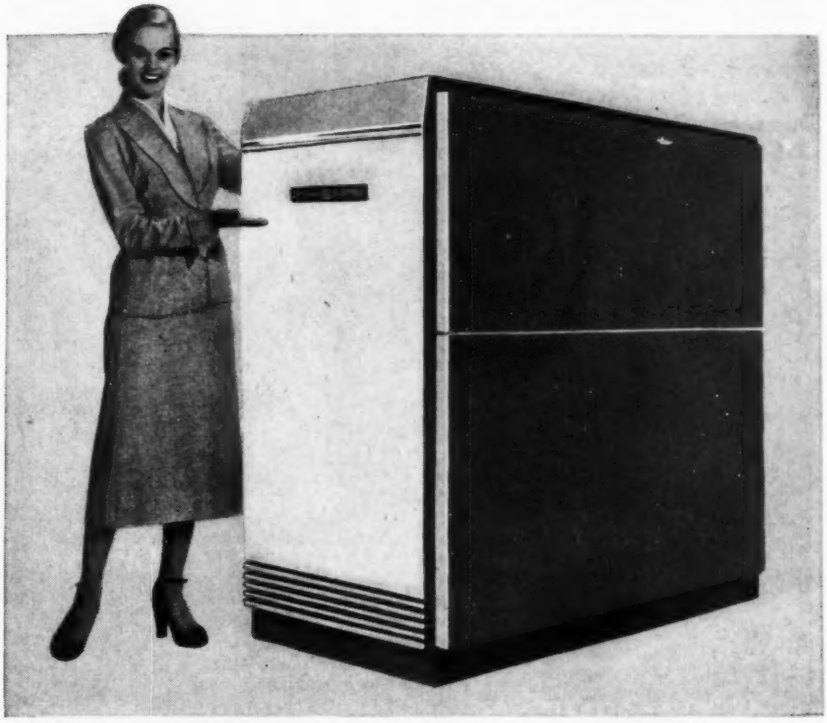
FORGET CROSS VENTILATION. Homes can be oriented with the sun and winds without regard to cross ventilation. Fixed sash can be located to gain space and to make home design more functional. Use fixed instead of movable windows to help keep dust out and reduce maintenance. Unsightly screens can be eliminated.

YEAR-ROUND PATIOS AND TERRACES. Enclose porches and terraces for more comfortable year-round use. An air conditioned "patio" offers exciting architectural possibilities!

OPERATING COSTS. These are reasonable due to the high efficiency of the G-E Heat Pump. For heating it delivers, on the average, 3 units of heat for each unit of electric power consumed. All-electric homes with a G-E Heat Pump have had operating costs no greater than homes with conventional heating and cooling systems.

AVAILABILITY. The G-E Heat Pump is now available in the south, southwest, and on the west coast. It will be made available in other parts of the country as soon as distribution and service facilities are established.

FOR MORE INFORMATION General Electric has prepared an "Architect's Guide" on the G-E Heat Pump. It shows how G.E.'s packaged heat pump gives you more *freedom in designing* year-round comfort into homes and small commercial and institutional buildings. Send the coupon today to receive your copy of this informative guide.



USING ONLY ELECTRICITY AND AIR, the new G-E Heat Pump cools in summer without water, heats in winter without burning fuel. The 3-horsepower unit shown is for the average-sized southern home; a 5-horsepower unit is available for larger dwellings.

A SINGLE THERMOSTAT in the living room of this Sarasota, Fla. home automatically controls the indoor climate at all times, eliminating manual switchover from heating to cooling. The G-E Heat Pump makes *all-electric* living a practical reality for the first time.

Send for FREE "Architect's Guide"

GENERAL ELECTRIC

General Electric Company, Air Conditioning Division, Section AR-3, Bloomfield, New Jersey

Please send me the G-E Heat Pump Architect's Guide and supplementary heat pump literature.

NAME and TITLE.....

COMPANY.....

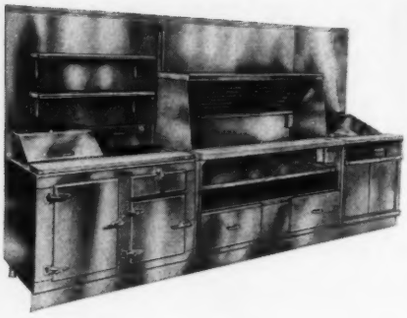
ADDRESS.....

CITY.....STATE.....

PRODUCTS
(*Continued from page 210*)

EQUIPMENT FOR HIGHWAY RESTAURANTS

ingredients, a large refrigerated storage area, space for toaster and other appliances, and a refrigerated meat drawer. The assembly is complete with stainless steel wall backing and shelves. Stanley Knight Corp., 3430 N. Pulaski Rd., Chicago 41, Ill.



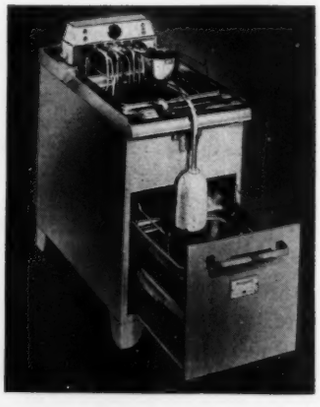
Stanley Knight Short Order Unit

• *Lamson Trayveyors* automatically convey trays of food and dishes from one floor to another by a series of shelves

Lamson Trayveyor

attached to endless moving chains. This results in a continuous stream of tray traffic, providing quicker service to the customer and conserving considerable space for serving areas. The equipment is also extremely advantageous in hospitals, school and industrial cafeterias, and clubs and bars. Available in single or double duty models. Lamson Corp., Syracuse 1, N. Y.

• A new electric deep fat frying device, the *Mark 313*, has recently been marketed. It is reported that fryer will produce 313 2-oz servings of French fries per hour in only 28 lb of fat. It also semi-automatically takes over such functions as draining and straining fat, and fat changeover. Hotpoint Co., Commercial Equipment Dept., 227 S. Seeley Ave., Chicago 12, Ill.



Mark 313 Deep Fat Fryer

(*Continued on page 216*)

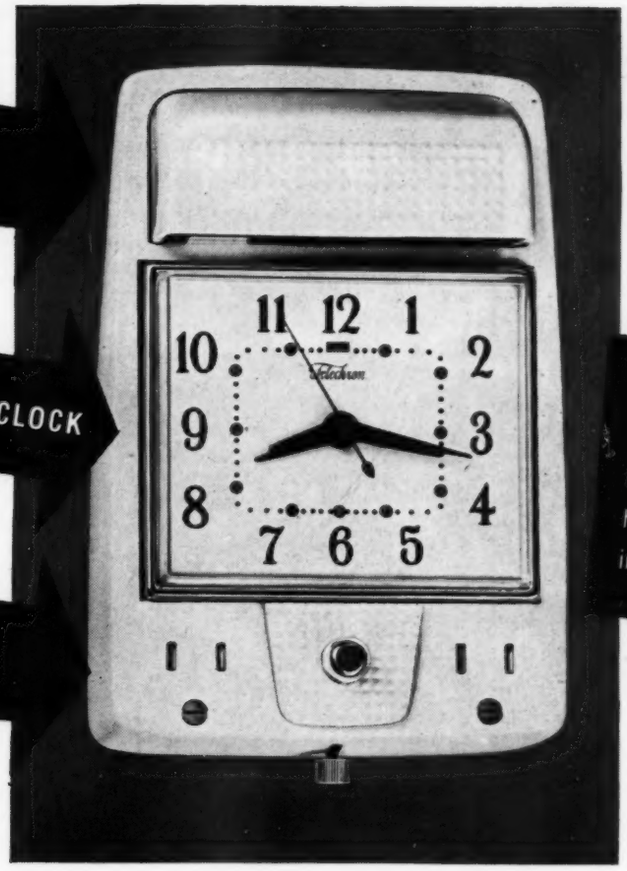
WHY "HILLYARD" when choosing FLOOR TREATMENTS?
Because: Hillyard products are specialized for particular floors — you can depend on them to add safety and beauty underfoot in any new building you plan — any old building you remodel.
Because: Hillyard trained floor experts (Hillyard Maintaineers) act as your job captains (without charge) from construction stage to finished beauty.
"Always a standardized product whenever you buy from Hillyard."
WRITE — for the name and address of the Hillyard Maintaineer nearest you.
. . . on your staff not your payroll
See Our CATALOGUE IN SWEETS
"You know it's right if it comes in the checkerboard drum."
FLOOR HILLYARD TREATMENTS
ST. JOSEPH MISSOURI

new "SELL" for new homes

NIGHT LAMP

TELECHRON ELECTRIC CLOCK

2 ELECTRIC OUTLETS



Built-in unit

... neat, trim, permanent.

TEL-IN-WALL

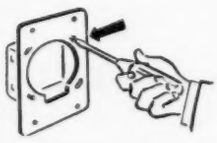
Low-cost, 3-way feature that helps sell homes. Goes right in wall. No cord shows.

KITCHENS. Built-in wall unit with electric outlets for kitchen appliances. Housewives will love it.

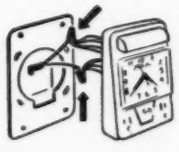
BATHROOMS. Solves bathroom clock problem. 7-watt night lamp a real feature. Other locations include game rooms, bedrooms, utility rooms.

Here's a brand new, low-cost plus feature to help new home sales. Easy to install. Gives modern, uncluttered look. Plan for Tel-in-Wall locations when you lay out wiring for lighting fixtures. No extra sawing or drilling required. Also a profitable item for remodeling jobs, motels, apartments, resort cottages. Order through your electrical supply or hardware house. Special introductory offer. Telechron Department, General Electric Co., 67 Union St., Ashland, Mass.

Installs easy as A-B-C



A Attach adaptor plate to 4" outlet box. Fits GE model SP52151 or equivalent.



B Connect wires. Operates on 110 v., 60 cy. house current. Outlets rated at 15A.

C Mount clock. Only four screws to fasten. Movement recesses into wall.

Telechron®

MARK OF TIMING LEADERSHIP

Charm of a Country Inn

Living room at Oak Haven Inn, on the "eastern shore" near Easton, Md. 4-zone Webster Baseboard Heating system installed in 1951, owners delighted with results.

Comfort of Webster Baseboard Heating

Obsolete 30-year old hot air heating system replaced by Forced Hot Water Webster Baseboard Heating during the heating season without interfering with guests.

Oak Haven Inn near Easton, Md., was once a private home. Then the Berkeley Brandts fell in love with it. Without sacrificing its unusual charm, they changed it into a year-round vacation retreat.

"In 1951, we decided to replace the obsolete 30-year old gravity hot air system", Mr. Brandt said. "We decided on Webster Baseboard Heating because we wanted the heating out of sight as well as out of mind. There is no exposed piping!

"The change-over was made during the heating season without inconvenience to our guests. C. Albert Matthews, well-known Easton contractor, had his men work room by room, cleaning up each day to permit occupancy at night.

"Now guests are comfortable without being aware of heat. The new system spreads the heat evenly all around the perimeter of the building. It's clean too! We know because we can see the difference. The system is zoned so we can shut off unused portions of the inn."

If you are considering a heating modernization program, call the Webster Representative, or write for his name.

Address Dept. AR-7

WARREN WEBSTER & CO.
Camden 5, N.J. Representatives in Principal Cities
In Canada, Darling Brothers, Limited, Montreal

Webster
TRU-PERIMETER FORCED HOT WATER
BASEBOARD HEATING

Architectural Engineering

PRODUCTS

(*Continued from page 214*)

Accessories for Sun Bathing

A recent introduction to the sun bathing accessory field is the new *Sun Circle*, designed by W. Wes Williams. An attractive asset to patio, sundeck or pool-side, this contemporary piece of

Canvas laced to circular metal frame provides sun-bathing space for one or more

furniture can also be used effectively in a rumpus room or child's playroom. A circular piece of canvas measuring 6½-ft in diameter is stretched over a lightweight circular metal frame, supported by 14-in. legs. The frame is finished in a black lacquer mat with a rust proof undercoat. Due to the lightweight frame, the Sun Circle may be easily moved from one place to another, and because of its circular shape permits ample room for two people. This new accessory is also available in a foam rubber custom-made model. Carson Roberts, Inc., 8811 Alden Dr., Los Angeles 48, Calif.

Rubber Shower Head

The *Magic Fountain* is a new shower head which employs a diaphragm of live rubber pierced with 60 microscopic slits. Water entering the main body of the shower head is mixed to a uniform temperature and then strikes a metal plate, is swirled about and forced through the slits as a soft, foamy spray. A simple adjustment of a set screw changes the spray from wide to narrow diffusion.

(*Continued on page 218*)

SIMPSON CERTIFIED ACOUSTICAL CONTRACTORS
USING GENUINE Simpson ACOUSTICAL PRODUCTS

ALABAMA
Badham Insulation Co., Inc., Birmingham
Stokes Interiors, Inc., Mobile
ARIZONA
Fiberglas Engineering & Supply Co., Phoenix
Hall Insulation & Tile Co., Tucson
ARKANSAS
National Builders' Supply, Inc., Little Rock
CALIFORNIA
Coast Insulating Products, Los Angeles and San Diego
Cramer Acoustics, San Francisco and Fresno
COLORADO
Construction Specialties Co., Denver
CONNECTICUT
W. T. Roberts Construction Co., East Hartford
DISTRICT OF COLUMBIA
Kane Acoustical Co., Washington
GEORGIA
Dumas and Searl, Inc., Atlanta
ILLINOIS
General Acoustics Co., Chicago
INDIANA
The Baldus Co., Inc., Fort Wayne
E. F. Marburger & Son, Inc., Indianapolis
IOWA
Kelley Asbestos Products Co., Sioux City
KANSAS
Kelley Asbestos Products Co., Wichita
KENTUCKY
Atlas Plaster & Supply Co., Louisville
MARYLAND
Lloyd E. Mitchell, Inc., Baltimore
MASSACHUSETTS
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MINNESOTA
Dale Tile Company, Minneapolis
MISSISSIPPI
Stokes Interiors, Inc., Jackson
MISSOURI
Kelley Asbestos Products Co., Kansas City
Hamilton Company, Inc., St. Louis
NEBRASKA
Kelley Asbestos Products Co., Omaha
NEW JERSEY
Kane Acoustical Co., Fairview
NEW MEXICO
Fiberglas Engineering & Supply Co., Albuquerque
NEW YORK
Robert J. Harder, Inc., Lynbrook, L. I.
Kane Acoustical Co., Inc., New York
Davis-Fetch & Co., Inc., Buffalo, Rochester and Jamestown
Davis Acoustical Corp., Albany
NORTH CAROLINA
Bost Building Equipment Co., Charlotte
OKLAHOMA
Harold C. Parker & Co., Inc., Oklahoma City
Kelley Asbestos Products Co., Tulsa
OHIO
The Mid-West Acoustical & Supply Co., Cleveland, Akron, Columbus, Dayton, Springfield and Toledo
OREGON
Acoustics Northwest, Inc., Portland
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TENNESSEE
John Beretta Tile Co., Inc., Knoxville
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TEXAS
Blue Diamond Company, Dallas
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UTAH
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...these Simpson Certified Acoustical Contractors (list at left) offer you <u>better</u> acoustical installations with <u>better</u> materials (many types) and <u>better</u> workmanship

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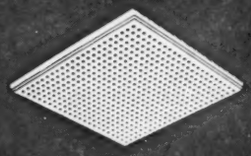
USING GENUINE Simpson® ACOUSTICAL PRODUCTS

This is the symbol of a Simpson Certified Acoustical Contractor . . . one of a Nationwide group selected by Simpson to install its well-rounded line of acoustical products. Already thoroughly experienced, these acoustical engineers are kept abreast of new developments and new installation techniques at periodic meetings with Simpson's acoustical scientists.



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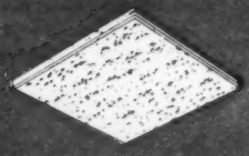
Clean perforations, without fuzz or "burr" . . . easy to wash, bright-white finish, bevel and all . . . high sound-absorption efficiency . . . Biotox Protected against mildew, mold, termites, and decay.

NEW SIMPSON FISSURED TILE

AN INCOMBUSTIBLE MINERAL ACOUSTICAL MATERIAL



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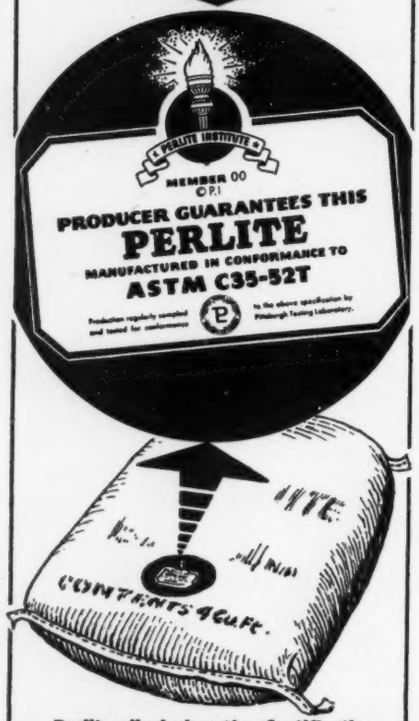
ACA-C33

for quality plaster–
specify
CERTIFIED
PERLITE
PLASTER AGGREGATE

This seal on *any* brand of perlite *guarantees* conformance to ASTM SPECIFICATION C 35-52 T



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5 advantages!

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3. lightweight—1/10 as heavy as sand. Reduces plaster weight 60%.

4. fireproof—Approved for thin, light, cost-saving fire protection for columns, walls, ceilings.

5. insulating—Cuts heat loss 4 times better than ordinary plaster.

For more facts on Certified Perlite and list of licensed producers, write:

PERLITE INSTITUTE
Room 1210A · 10 E. 40th Street
New York 16, New York

PRODUCTS

(*Continued from page 216*)

The diaphragm of the spray is made of crepe rubber and the body of hard plastic. All metal parts are plated to resist mineral corrosion and to wear indefinitely. The plastic body reportedly will not lime, corrode or hold heat. The head is said to be actually self cleaning, since each change of water pressure flexes the diaphragm, breaking up any large deposits or grit which might be present. Laboratory and usage tests are cited as having demonstrated that the

Shower head has crepe rubber diaphragm, plastic body, is self-cleaning

new shower head operates on from 40 to 60 per cent of the water required by other heads. Comparable savings in water heating costs are also cited. These are said to make the head especially valuable for large scale installations as well as for private homes. The water saving feature is further described as suiting the product especially for installations having limited water storage facilities, and for drought stricken areas, ships or any other place where water is at a premium. The head was invented by Arthur B. Barney and was developed by the Bacon Laboratories in conjunction with the Acusnet Rubber Co. It is being marketed by Magic Fountain, Inc., Waltham, Mass.

Low Cost Shower Cabinet

A new "Pilot" model *Fiat* shower cabinet recently introduced is said to include features of more expensive show-

(*Continued on page 224*)

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Reynolds Architect Service Representatives will work with you on your aluminum design problems without cost or obligation. This special service is Reynolds way of keeping pace with architects who are employing the unique characteristics of aluminum in varying ways for countless applications.

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A completely new manual on architectural aluminum with drawings for direct tracing. Please request on business letterhead.

For quick reference see catalog 5a/Re in Sweet's File

"Mister Peepers" returns September 13th on NBC-TV.

"The appearance of the exterior of our building is greatly enhanced and the load on the air-conditioning system is greatly lightened when (Goodall Casement) curtains are drawn tight against the sun."

George D Estes

Assistant Secretary,
New Hampshire Fire Insurance Co.

New Hampshire Fire Insurance Company Uses Goodall Casement Curtains Exclusively

The beauty and efficiency of the New Hampshire office building in Manchester, N. H., is supplemented with Goodall Casement Curtains. Like modern office buildings everywhere, New Hampshire chose Goodall for these superior features:

APPEARANCE—Goodall Casements come in a rich variety of weaves, colors, and textures . . . give the soft appearance of draperies.

TEMPERATURE CONTROL—Goodall Casements are highly reflective . . . bounce back the sun's hot visible and infra-red rays. This eases the load on air-conditioning systems . . . aids in keeping non air-conditioned offices cooler, more comfortable.

LIGHT CONTROL—Goodall Casements diffuse sunlight into soft, glareless light that helps provide better working conditions at maximum distance from windows.

NOISE CONTROL—Goodall Casements absorb noise. The sound of office machines, ringing telephones, voices, all are perceptibly muffled.

LONGER WEAR—Because Goodall is not married to any one fiber, Goodall Casement Curtains are *Blended-to-Perform*. That means they are composed of a variable blend of fibers...Angora Mohair, rayon, acetate, cotton and nylon . . . fibers chosen for their greater durability and lasting luxury.

EASIER MAINTENANCE—Dust virtually slides off the smooth surface of Goodall Casements. They resist wrinkling, stay fresh longer. They can be washed or dry cleaned thanks to multiple processes that minimize shrinking, sagging, stretching.

For full information write: Goodall Fabrics, Inc., Casement Division, 525 Madison Avenue, New York 22, New York

Goodall Fabrics

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GOODALL FABRICS, INC. NEW YORK • BOSTON • CHICAGO • DETROIT • SAN FRANCISCO • LOS ANGELES

Vina-Lux® .. Floors That Lighten Chores

This superbly modern flooring brings the miracle of vinyl-asbestos to the modern home . . . lightens chores because it rarely needs hard scrubbing . . . never needs waxing. It brings safer footing, easier walking, because it has a cushioned resiliency that makes it easy on the feet.

Here's a flooring ideal for kitchens, recreation rooms or any area where food and drink are served. Vina-Lux has built-in resistance to all kinds of greases and oils . . . and to most of the common household products that are often spilled on kitchen floors.

Vina-Lux brings you colors that are new and fresh .. colors that will enable you to design interiors that harmonize with the modern homes built today.

When you see Vina-Lux, you'll see for yourself why it's the new wonder floor all America is talking about — its amazing surface alone is enough to convince you. Samples and literature are yours on request.

UVALDE ROCK ASPHALT CO.

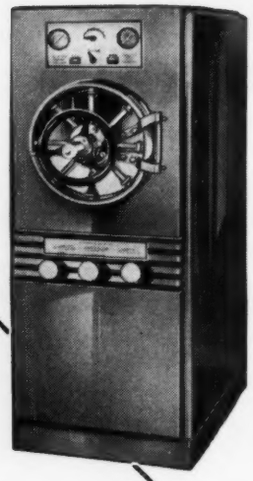
FROST BANK BUILDING • SAN ANTONIO, TEXAS

Makers of AZROCK • AZPHLEX • VINA-LUX • DURACO

AZROCK FLOORING PRODUCTS

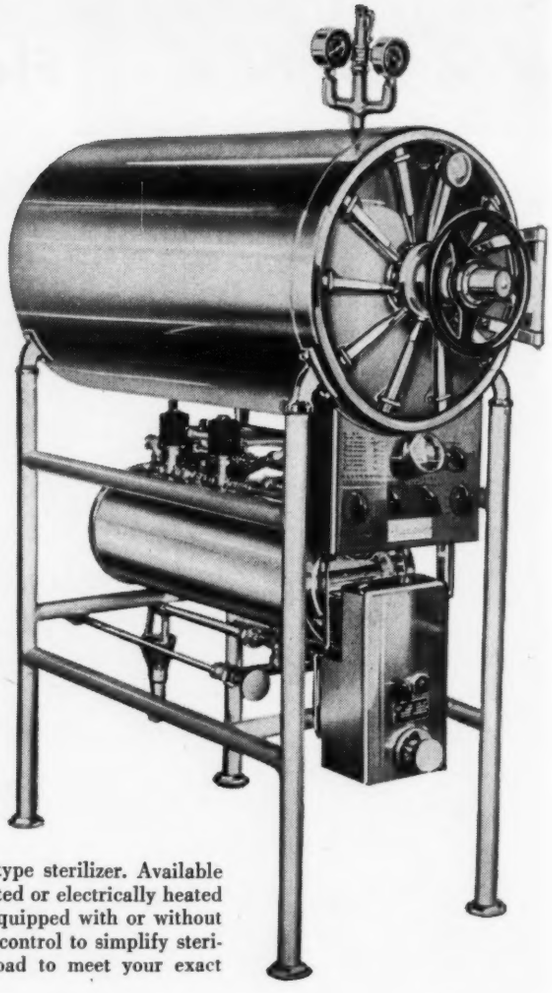
"Azrock Makes Fine Floors"

New Ohio Model A-425 Automatic Instrument Washer-Sterilizer uses Monel for strength, corrosion resistance. Available for either exposed or recessed mounting.



The Hospital's Whole Staff will be pleased

. . . when you Specify Monel Sterilizers



Ohio-Scanlon autoclave-type sterilizer. Available in both direct steam heated or electrically heated models. Sterilizers are equipped with or without "Steritrol"... automatic control to simplify sterilizing of any type of load to meet your exact requirements.

One sure way to keep hospital clients happy is to specify Monel® sterilizers.

And it's easy to see why —

Superintendents like Monel because— Monel is stronger than structural steel and it gives long trouble-free service life at the temperatures and pressures necessary for maintaining sterile conditions. It resists the corrosive action of acids, alkalis and saline solutions.

Maintenance people like Monel because Monel is easy to keep clean. Plain soap and water are all that's needed to keep it bright and shiny. And detergents or mild abrasives can't hurt its good looks because Monel is solid all the way through. What's more, Monel doesn't chip, crack or peel.

Doctors and Nurses like Monel because it cannot stain or contaminate dressings.

When you look at all these advantages you can see why Ohio-Scanlon sterilizers are made by Monel.

Want more information? Then write for the Ohio-Scanlon sterilizer catalog — Form 1667. Address: OHIO CHEMICAL & SURGICAL EQUIPMENT CO., A Division of AIR REDUCTION COMPANY, INC., 1400 E. Washington Avenue, Madison 10, Wisconsin.

Remember, however, because so much is needed for vital defense work, Monel for civilian use is on extended delivery. It pays to order Monel sterilizers well in advance of your need. The International Nickel Company, Inc., 67 Wall Street, New York 5, N. Y.

INCO TRADE MARK

Monel *. . . always a wise choice for sterilizers*

Build

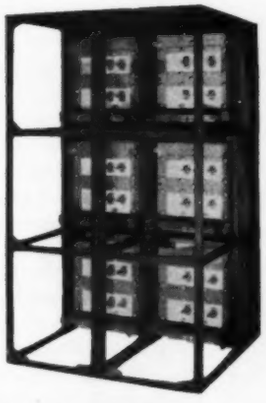
all these things and more with versatile UNISTRUT® METAL FRAMING

UNISTRUT framing and pipe clamps support heavy banks of conduit leading to motors in plant of large pharmaceutical manufacturer.

Load center built with UNISTRUT channel and fittings. Framing system's adjustable feature permits quick location of gear to spot desired.

Photo shows how a large power company used UNISTRUT framing and pipe clamps to rack rows of conduit in steam plant installation.

Framework of UNISTRUT channel and fittings support switch gear in typical cubicle installation.



Rack conduit, cable and pipe—
Frame power load centers—
Mount switches, meters and panelboards

Those who use completely adjustable UNISTRUT metal framing know it's easy to handle and quick to erect—that it provides great strength without bulk—that adjustments, changes and additions are easily made at any time.

The UNISTRUT system cuts costs, too. You save time in engineering detailing and eliminate the need for trained erection crews—anyone can build with UNISTRUT channel and fittings. No drilling, no welding, no special tools or equipment—all you need is a hacksaw and a wrench to build wire and cable reel racks, fluorescent fixture supports, transformer vaults, electric motor mounts, bus duct supports and many other structures. It will pay you to try UNISTRUT framing on your next job.

Basic Components of the UNISTRUT Metal Framing System

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FOR THE MAN ON THE JOB! 84 pages packed with pictures, drawings, ideas and data on how to frame, rack, mount, suspend and support all kinds of electrical equipment with UNISTRUT channel and fittings.

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The World's Most Flexible All-Purpose Metal Framing

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Company_____

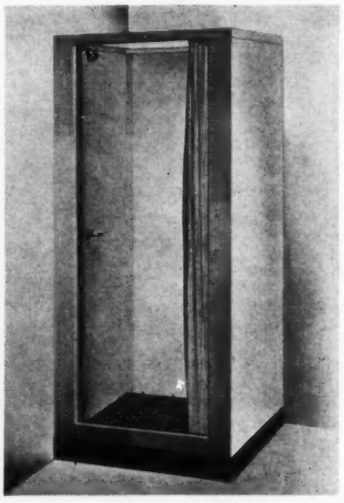
Address_____

City_____ Zone____ State_____

PRODUCTS

(*Continued from page 218*)

ers in a unit scheduled to sell for under $60. In addition to contributing to initial low cost, the unit's simplicity of design and construction reportedly makes possible savings in shipping and handling costs, since the entire cabinet, including receptor, can be packed in a single carton. The shower includes a receptor of heavy gage steel with a vitreous enamel finish; bonderized steel



Low cost shower cabinet has steel receptor and walls. Glass door optional

walls with baked-on synthetic enamel finish; chromium plated valves, shower head and soap dish; and a heavy plastic shower curtain. It is designed to take the manufacturer's "Neptune" shower door, available with clear or obscure glass. Construction is described as rustproof throughout, and the cabinets have a reversible panel feature which permits installation of valves either at left or right without drilling. The cabinet is available in 30- and 32-in. wide sizes, both of which are 75 in. high. Fiat Metal Mfg. Co., Long Island City 1, N. Y.

Home Food Freezers

Specifically designed for the small family or the apartment dweller with a limited amount of floor space, the *Metropolitan* combines all of the advan-

(*Continued on page 228*)

Experience proves. . . **REVOLVING DOORS turn PROBLEM space into PROFITABLE space**

• **Because they keep all lobby area comfortably usable right up to the entrance . . . keep out drafts, dirt and noise that sweep in through swing doors . . . revolving doors turn otherwise problem space into highly profitable revenue space.**

And space-making is just one of the important money-making advantages gained with revolving doors. "Always closed," they minimize decorating and maintenance — cut cooling and heating costs as much as 25% per year. "Always open," they speed the orderly flow of in-and-out traffic — operate smoothly, safely, year in and year out with least upkeep or attention.

In virtually all types of commercial and institutional buildings, over half of all revolving doors sold are swing door replacements. Including these doors in original specifications is sound client relations. See our catalog in Sweet's for full data.

YES NO

- ☐ ☐ Can you risk asking your client if the entrance is comfortable and draft-free?
- ☐ ☐ Does the entrance prevent wasteful heat loss, on cold blustery days?
- ☐ ☐ With air conditioning, does the entrance keep out heat, to minimize operating costs?
- ☐ ☐ Does the entrance assure orderly flow and prevent traffic jams during rush hours?
- ☐ ☐ Is the floor space completely usable, right up to the entrance?
- ☐ ☐ Does the entrance keep out dust and dirt, to reduce frequency of redecorating and cleaning, and merchandise spoilage in sales areas?

If your answer is NO to any of these questions, you owe it to yourself to investigate the profit possibilities of a revolving door entrance.

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REVOLVING DOORS

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- storage wall with a built-in view
- guarding privacy with extended fins
- turning a bay inside out for extra seating and storage
- new way to light an indoor garden

Ponderosa Pine

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Business or Profession.....

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City.....*Zone*....*State*.....

note:

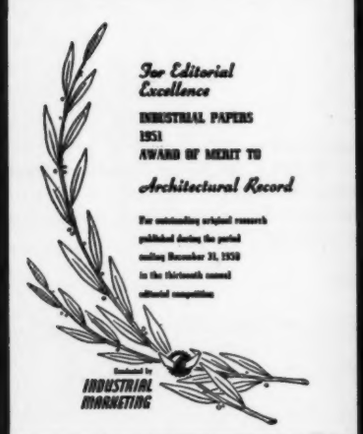
Since this advertisement appeared in May, Architectural Record has won four more Awards of Merit in Industrial Marketing's 1953 Business Paper Editorial Achievement Competition.

Also reflecting editorial excellence is the second annual Howard Myers Award which has gone to Lewis Mumford for his article "Function and Expression in Architecture" in the November 1951 issue of Architectural Record. The Howard Myers Award is administered by the Architectural League of New York.

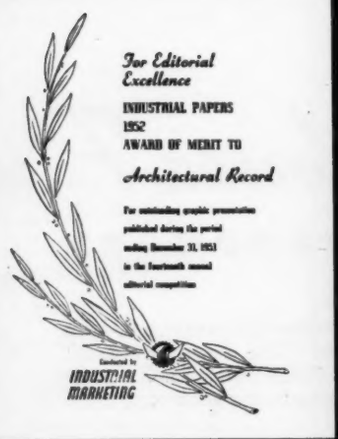
Another reason why **A**rchitectural **R**ecord leads the field by 1,000 advertising pages a year*

First Award—best graphic presentation—"Architecture in Hawaii," October and November 1950 issue.

22 Awards

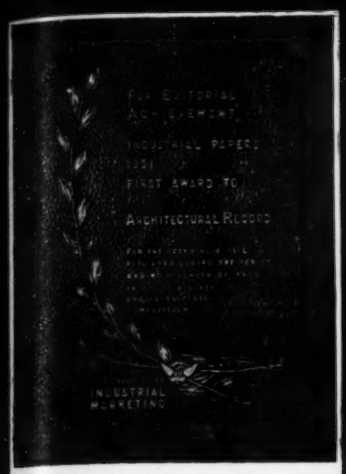


Award of Merit—outstanding original research—"Motels," March 1950.



Award of Merit—outstanding graphic presentation—"Vacation House in Oregon," July 1951 issue.

Award of Merit—outstanding series of articles—"Philosophy of Architecture" (1951).



First Award—best single issue—October 1950 issue featuring "Mental Hospitals and Schools."

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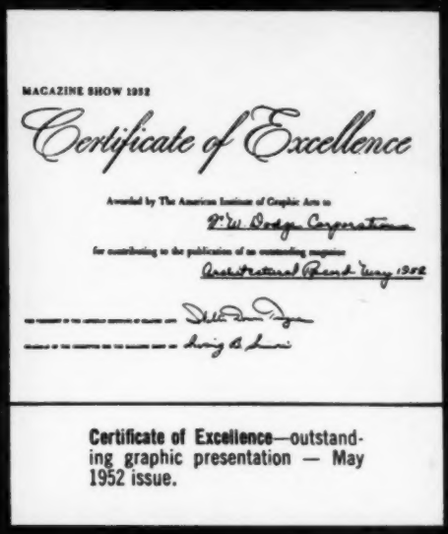
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Award of Merit—outstanding original research—"Next Year's Boom Will Be Different," November 1950.

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Architectural Record

"workbook of the active architect and engineer"

*1952: Architectural Record, 2,817 pages; second magazine, 1,834 pages. First quarter 1953: Architectural Record, 720 pages; second magazine, 414 pages. Source: Industrial Marketing.

PRODUCTS

(*Continued from page 224*)

tages of the larger freezer with the fact that it is smaller in dimensions. Measuring only 36 in. in height, 28 in. in depth and 33 in. in length, the freezer is reported to hold approximately 300 lb of food. The exterior finish is white baked enamel and the interior is aluminum. Equipped with adjustable temperature control, high-density "Fiberglas" insulation and lock-type hardware, the Metropolitan is powered by a 1/6-hp sealed compressor.

Also introduced by the same manufacturer was the *Twin-Lid*, a new chest type freezer designed to provide greater capacity in less floor space. It is reported to give 50 per cent more storage capacity in 30 per cent less floor space than the average freezer, through the use of high-density glass fiber insulation. Said to be rust and chip proof, the unit is easily cleaned. The measurements are 36½ in. high, 28 in. deep and 66 in. wide. The freezer is powered by a ¼-hp Tecumseh hermetically sealed unit. Jordan Sales Co., Philadelphia, Pa.

Plastic Wall Tile

Hako Coronet Plastic Wall Tile comes in 18 attractive colors and is reported to give positive waterproof protection, due to a wide gasket-like water seal flange which causes the ridges of cement to close up. The Coronet tile has a shallow cavity back, which assures perfect adhesion with less mastic, and it can be easily installed by anyone. Suitable for bathroom, kitchen or utility room, the tiles also offer a practical wall covering for installations in beauty parlors, club rooms, auditoriums and public dining rooms. Tile sizes are: Field tile, 4¼ by 4¼ in.; half tile, 4¼ by 2⅛ in.; feature strip, 4¼ by ¾ in. Coronet resin cement is suggested for applying the tile. Hachmeister, Inc., Pittsburgh 13, Pa.

Another recently introduced tile is the *Matico Plastic Wall Tile*, available in 12 attractive colors — plain or marbleized. The Matico tile is manufactured in 4¼ by 4¼-in. size and comes with a full assortment of regular and bull nose trim. Mastic Tile Corp. of America, P. O. Box 1151, Newburgh, N. Y.

. . . THEN WE INSTALLED ALGRIP

And Ended Slipping Accidents And High Insurance Costs!

It happened at a large industrial plant, where oil and grease on a loading platform created a constant hazard. A lift truck skidded on the slippery surface, toppled from the platform's edge, and crushed the operator to death.

Then A.W. ALGRIP Abrasive Rolled Steel Floor Plate was installed on the platform—and slipping accidents ended at once. For ALGRIP is truly non-slip—even on steep inclines! Hundreds of tiny abrasive particles in each square foot of ALGRIP converted the slippery, dangerous platform into a hard gripping, anti-skid surface—safe for men and vehicles alike.

IMMEDIATE SAVINGS were obtained in three ways: (*1*) *No more costly, morale shattering accidents.* (*2*) *Faster handling of loads.* (*3*) *Workmen's compensation insurance premiums were substantially reduced by more than enough to pay for the* ALGRIP *installation.*

END SLIPPING ACCIDENTS THAT STEAL PRODUCTION AND KITE INSURANCE RATES

A.W. ALGRIP—only abrasive rolled steel floor plate in the world—pays for itself in savings from safety. Tough abrasive particles (same kind used in grinding wheels) put hundreds of tiny safety-brakes in every footstep—make it virtually impossible to slip even on steep inclines. ALGRIP doesn't wear smooth either—wear only exposes new particles. And tough rolled steel makes this floor plate stronger than other abrasive floorings. For safety at a saving, get the full ALGRIP story today. Write for our new Booklet AL-21—without obligation.

Over 125 Years of Iron and Steel Making Experience.

ALGRIP Abrasive Rolled Steel Floor Plate

ALAN WOOD STEEL COMPANY

CONSHOHOCKEN, PA.

Other Products: A. W. SUPER-DIAMOND Floor Plate • Plates • Sheet • Strip (Alloy and Special Grades)

MASTIC TILE CORPORATION OF AMERICA

Member: Asphalt Tile Institute

Joliet, Ill. • Long Beach, Calif. • Newburgh, N. Y.

Cheers FOR THIS GREAT, NEW STYLE IN TILE!

MATICO *Confetti!*

HURRAHS — from America's value-wise home buyers. It's high-style flooring at low prices... easy to clean... lasts for years!

APPLAUSE—from leading decorators. They welcome the fresh, new styling that gives them wide freedom in creating exciting decorative schemes.

A ROUSING HAND—from architects everywhere. Confetti is ideal for every type of installation including on-grade, slab construction homes. Fortified with polystyrene plastic for bright, enduring colors . . . extra toughness and resiliency.

Confetti is available in 10 gay, festive colors, in 9" x 9" tiles of ⅛" thickness. Mail coupon today for complete details.

MASTIC TILE CORPORATION OF AMERICA
Dept. 8-7, P. O. Box 986
Newburgh, N. Y.

Please send me complete specification data and free samples of MATICO Confetti tile flooring.

Name .....

Address .....

City ..... Zone ..... State .....

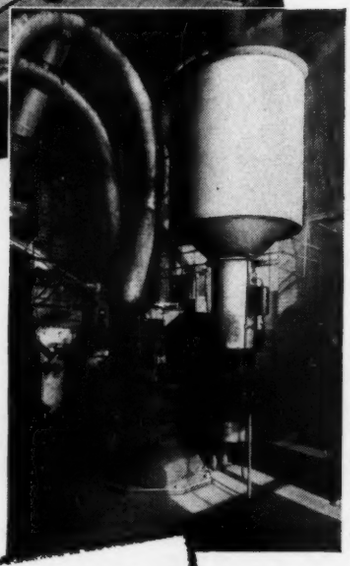
"How we save $20,000 a year—USING COAL INSTEAD OF OIL"

Louis G. Notte,
Chief Power Engineer,
Little Falls Laundry,
Little Falls, N. J.

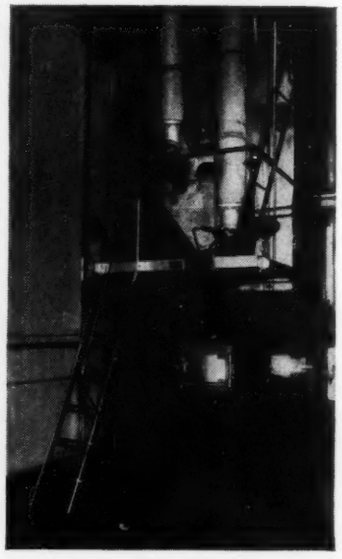
(ACTUAL CASE HISTORY OF THE LITTLE FALLS LAUNDRY, LITTLE FALLS, N. J.)

"Our laundry is one of the largest in the country," says Chief Power Plant Engineer Notte, "and, we think, one of the most progressive. Our company insists on superior performance at lowest possible cost all along the line. That's exactly why we depend on coal-fired equipment. From coal we get the daily amount of BTU's we need at a cost of $200—to get the same BTU's from oil would cost $280. We can change to oil on less than a day's notice—but so far we've *never* done it. Coal does a great job—cheaper."

To this plant in Little Falls 500 employees come to take care of the laundry for an estimated 100,000 people. And from this plant 100 trucks travel to customers across a 5,000 square-mile area! The laundry depends on coal to provide all electric power and lights—heat for all buildings—steam for hydraulically-operated machines—steam for pressers and dryers.



The pulverizer from which coal is blown into the boiler. Before this operation, the laundry employs a conveyor belt to feed a precrusher. From there, conveyors carry the coal to the 100-ton hopper which feeds the pulverizer. *Modern coal devices slash labor costs—make coal's basic economy even greater.*



A section of the modern coal-fired boiler. With equipment like this it's possible to add 10% to 40% to the power derived from the same amount of coal in years past—to bring over-all boiler efficiency to 85% or more.

If you're running your own steam plant, here are a few down-to-earth facts you don't want to miss!

COAL in most places, is today's most economical fuel.

COAL resources in America are adequate for all needs—for hundreds of years to come.

COAL production in the U. S. A. is highly mechanized and by far the most efficient in the world.

COAL prices will therefore remain the most stable of all fuels.

COAL is the safest fuel to store and use.

COAL is the fuel that American industry can count on more and more—for with modern combustion-and-handling equipment, the inherent advantages of well-prepared coal net even bigger savings.

● Plants that use coal are in an enviable position—at the present *and* for the future. *For they are more certain than the users of other fuels of a dependable fuel supply—at stable prices.* The reasons are compelling. Of America's total fuel reserves, 92% is coal: Even today, oil is *imported* while this country can and does *export* coal. In addition—this country's mines are the most highly mechanized and efficient in the world.

To get *all* the great economy that coal is capable of delivering—to find out how much more efficient and dependable a job coal and the very latest coal-fired equipment can do—call in a competent consulting engineer. He'll recommend the right equipment for your specific needs. Then you'll see exactly why coal *on a performance basis, on a dollars-and-cents basis* . . . is your best fuel buy, by far!

BITUMINOUS COAL INSTITUTE
A Department of National Coal Association, Washington, D. C.

FOR HIGH EFFICIENCY FOR LOW COST

YOU CAN COUNT ON COAL!

IN PITTSBURGH'S GOLDEN TRIANGLE . . .

34,200 Tons of Steel Frame Construction by AMERICAN BRIDGE in 24 months!

PITTSBURGH'S new buildings have been the talk of the business world. Few cities anywhere have experienced as much commercial construction in so short a time.

For example, in the famous Golden Triangle, busy hub of this hustling metropolis, American Bridge alone erected 34,200 tons of steel framework for six towering new buildings in the two year period between April 3, 1950 and March 31, 1952.

American Bridge fabricated and erected all structural steel for the 41-story building known as 525 William Penn Place; the 31-story Alcoa building; the three Gateway Center buildings (one of which is 24-stories, and two 20-stories); and the 20-story Bigelow Apartment House.

Such an accomplishment is unusual only in the fact that all buildings are located in the downtown area of a single city . . . and that all were under construction at practically the same time. The interesting point is that one company had the facilities, the skilled manpower, and the engineering know-how to handle six sizable jobs like these with such speed and efficiency without disrupting the time schedule of the numerous other construction projects which it was handling in other parts of the country.

It only goes to prove that no job is too large for American Bridge. If you would like to know more about the advantages of American Bridge fabricated and erected construction, call our nearest office.

RECENT ADDITIONS TO PITTSBURGH'S SKYLINE

525 William Penn Place
14,000 tons of Structural Steel

Alcoa Building
6,400 tons of Structural Steel

Gateway Center Buildings (3)
12,000 tons of Structural Steel

Bigelow Apartment House
1,800 tons of Structural Steel

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.
Contracting Offices in: AMBRIDGE · ATLANTA · BALTIMORE · BIRMINGHAM · BOSTON CHICAGO · CINCINNATI · CLEVELAND · DALLAS · DENVER · DETROIT · DULUTH · ELMIRA GARY · MEMPHIS · MINNEAPOLIS · NEW YORK · PHILADELPHIA · PITTSBURGH PORTLAND, ORE. · ROANOKE · ST. LOUIS · SAN FRANCISCO · TRENTON
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

AVAILABLE NOW! *For showing in churches, schools, clubs and industries, the new sound and color motion picture— BUILDING FOR THE NATIONS — a candid, factual photographic record of the highlights of the fabrication and erection of the United Nations Secretariat Building.* For free bookings, write Pittsburgh office.

AMERICAN BRIDGE

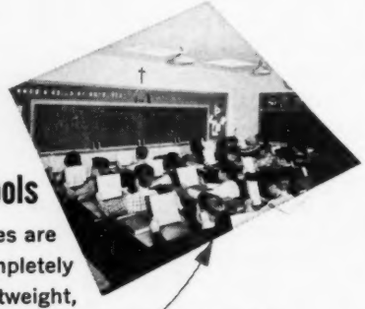
USS

UNITED STATES STEEL

wascolite skydomes

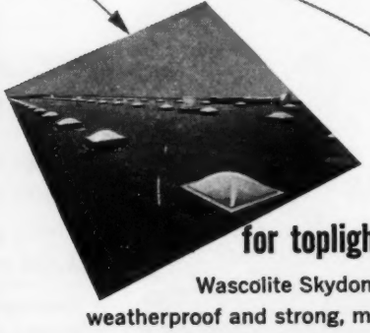
for toplighting homes

Wascolite Skydomes are best. They come in clear or white translucent acrylic plastic, three basic shapes. They allow the architect a free hand in creating more pleasant, private and practical homes because he no longer depends on perimeter areas alone as a source of daylighting.



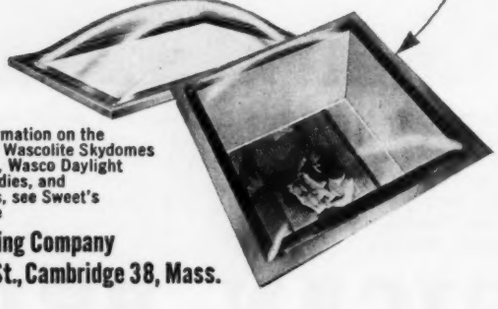
for toplighting schools

Wascolite Skydomes are best. They are completely prefabricated, lightweight, shatterproof. They provide abundant glare-free daylight for classrooms, libraries and all interior areas. They cut construction costs because they permit simple frame construction, lower ceilings and are installed with a minimum of labor.



for toplighting industry

Wascolite Skydomes are best. They are weatherproof and strong, made with exclusive flash-welded frames of extruded aluminum. They bring better light to all operations, free periphery areas for storage, reduce electric light bills. Practically self-cleaning, they eliminate maintenance costs.
(All photos taken without artificial light).



For further information on the complete line of Wascolite Skydomes and Accessories, Wasco Daylight Engineering Studies, and Wasco Flashings, see Sweet's Catalog, or write

Wasco Flashing Company
82 Fawcett St., Cambridge 38, Mass.

Architectural Engineering

LITERATURE

(*Continued from page 188*)

Moisture Problem in Homes

How to Control Moisture in Homes. Manual contains helpful information on the need for moisture control, sources of moisture, and methods and procedures for its control. The final chapter deals with thermal insulation, and is followed by five appendices containing technical data related to the moisture problem. Available at 25 cents a copy. 72 pp., illus. National Mineral Wool Association, 1270 Sixth Ave., New York 20, N. Y.

Structural Plastic

Atlas Ampcoflex Rigid Polyvinyl Chloride, Bulletin No. 9-1. Properties and applications of the manufacturer's self-supporting plastic material for corrosion-proof construction are outlined in this booklet. Engineering data is given, including information on fabrication and design factors, physical strength and chemical resistance of the material. Resistance characteristics are charted, and physical properties are tabulated. Illustrations of fume exhaust systems, tanks, ducts and similar products fabricated from the material are included. 6 pp., illus. Atlas Mineral Products Co., 8 Ash St., Mertztown, Pa.

Acrylic Plastic Signs

Plexiglas, The Outdoor Plastic for Signs. Colorful catalog contains 24 illustrations showing dramatic uses of Plexiglas signs and store fronts. Dealer identification types used in quantity by national manufacturers are pictured, as well as custom designed signs for single locations. Plain and corrugated store fronts are shown, in addition to solid color and color decorated signs. 17 pp., illus. Plastics Dept., Rohm & Haas Company, Washington Square, Philadelphia 5, Pa.

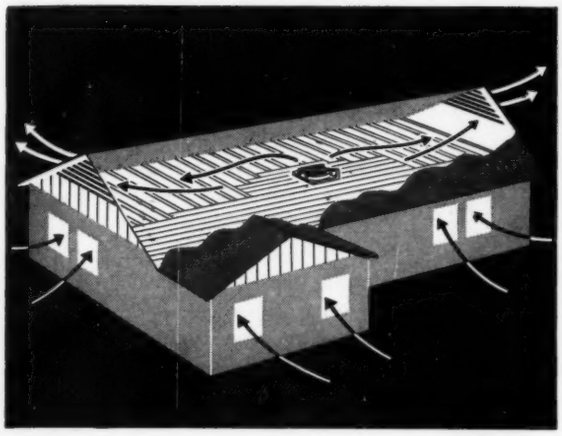
American Standards Association

Standards — Engineering Tools for Industry. This book is the combined published form of proceedings of the Third National Standardization Conference held in conjunction with the Centennial

(*Continued on page 234*)

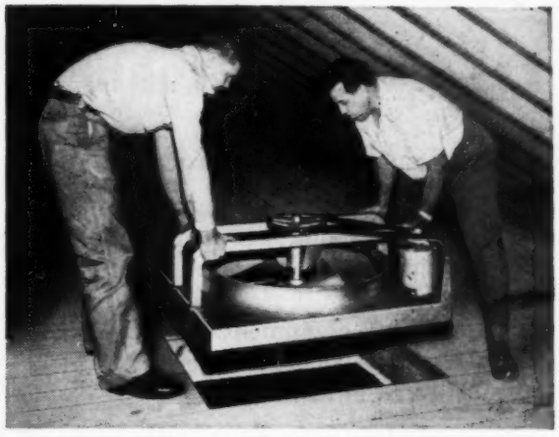
Cool your homes at minimum cost

Home buyers are seeking cool comfort



Cool breezes in every room

This inexpensive home cooling system fills the entire home with refreshing air on hottest summer nights. It pulls in fresh outside breezes . . . drives out hot, sultry air. Room temperatures drop 10 to 20°, bringing cool comfort to occupants.



Easily installed in any home

The new Hunter is the simplest of all attic fans to install in any home, old or new. Designed for quiet, trouble-free performance, it will cool any home for many years. Certified air deliveries range from 5000 to 15500 cubic feet per minute.

Hunter's new automatic shutter

This modern ceiling shutter opens or closes automatically at the flip of a switch, or with automatic timer. Finished in neutral shade of baked enamel, it blends with all room colors. Shutter will fit narrow hallways, and is easily installed

HUNTER *Attic Fans*

Mail coupon for new catalog

Hunter Fan and Ventilating Co.
396 S. Front St., Memphis 2, Tenn.

Hunter

Send complete information on Hunter Attic Fans to:

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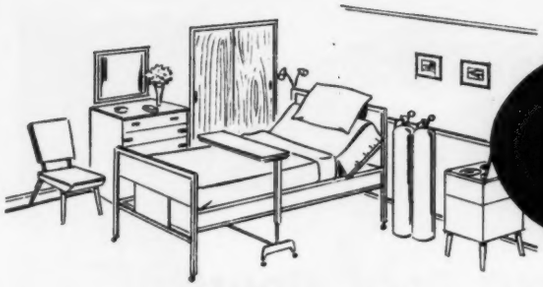
ADDRESS.....

See our Catalog in Sweet's Files



SINCE EMCO 1932

Patent Nos. 2,149,575; 2,617,155

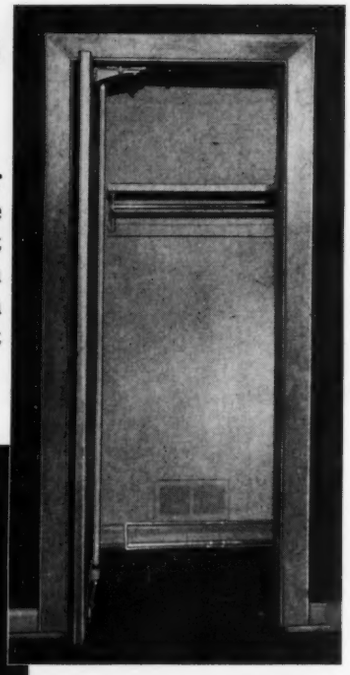
wardrobe closets

for hospital rooms

Save Valuable Floor & Wall Space

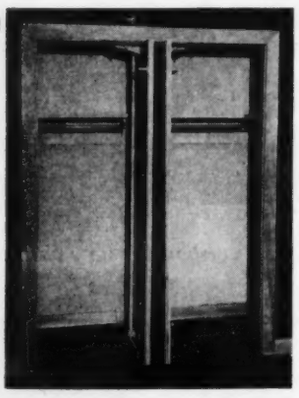
Emco Wardrobes eliminate full door swing into the room. Emco doors recede into the closet—leaving more cubic feet of the room free for placement of room furniture and equipment. In addition Emco Wardrobes offer these important hospital room advantages:

- ★ Ventilated for sanitation. No musty odors—easy to clean.
- ★ Every inch accessible—no dark corners.
- ★ Easy to operate—latches lock both open and closed.
- ★ Slab doors of any width from 2'0 to 3'0 in any veneer or doors may be painted. Choice of wood or metal jambs.
- ★ GUARANTEED for life of hospital under normal operating conditions.



SINGLE ROOM CLOSET

Door can be installed to arc either left or right.



DOUBLE ROOM or WARD CLOSET

Doors operate separately, recede to center as divider providing double closet space. Installed in multiple units or in combination with the single closet.

Ask for descriptive folder with complete specifications and name of nearest sales agent. No obligation.

WARDROBES ARE OUR BUSINESS NOT A SIDELINE

EQUIPMENT MANUFACTURING Company, Inc.

1210 E. 9th Street Kansas City, Missouri

LITERATURE

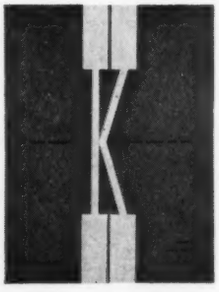
(*Continued from page 232*)

of Engineering in Chicago last September, and the American Standards Association's 34th Annual Meeting Award Luncheon held November 25 in New York.

Papers presented here are by William L. Batt, Minister of Economic Affairs to the United Kingdom; Roger E. Gay, president of the Bristol Brass Corporation; Colonel Willard T. Chevalier, executive vice president, McGraw-Hill Publishing Company; and Joseph W. Barker, president of the Research Corporation. Subject matter features standardization experience and practices in industrial construction and home building, chemicals, safety, purchasing, photography, welding and in the international field. Price, two dollars. 64 pp. American Standards Association, 70 E. 45 St., New York 17, N. Y.

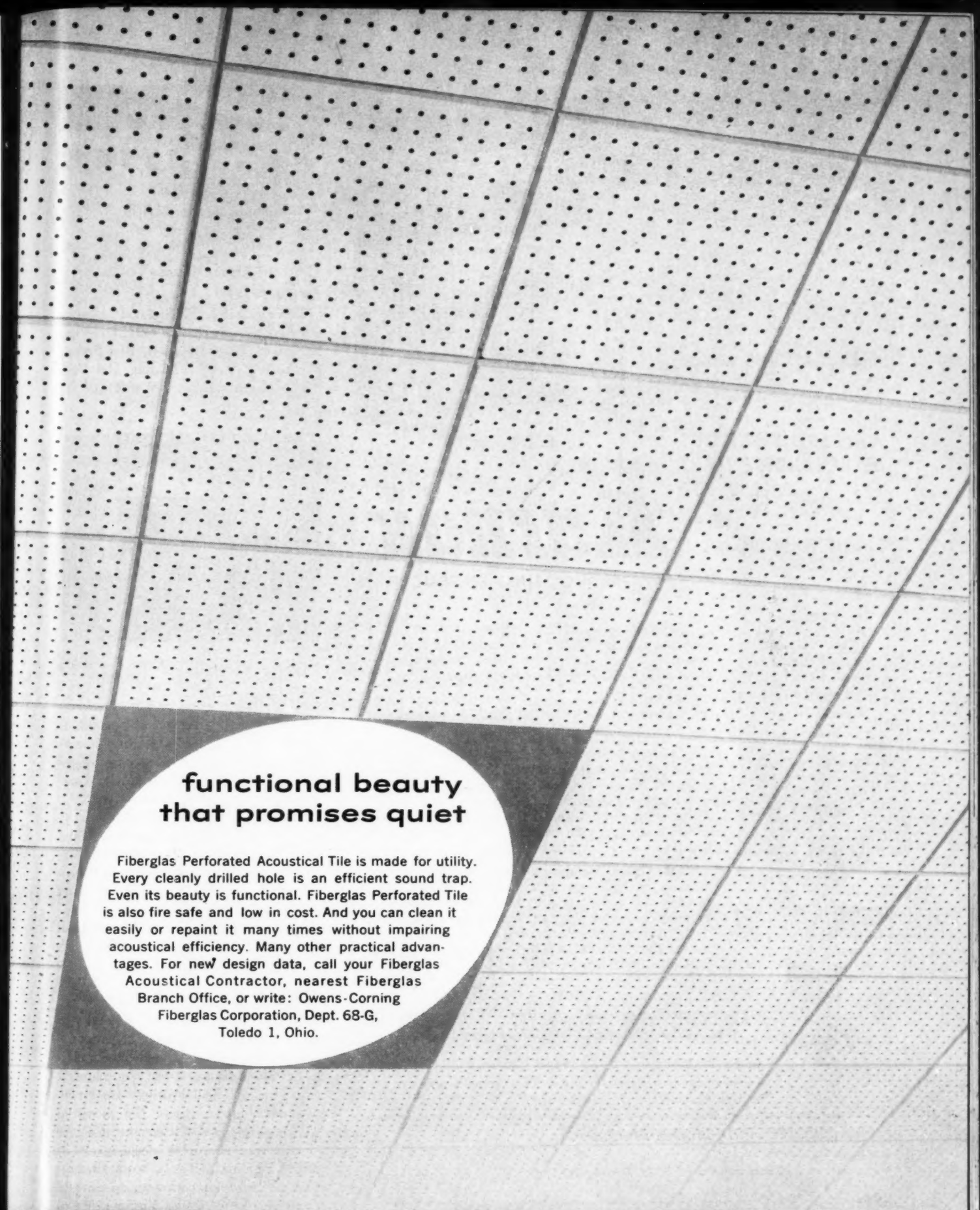
Revised Price Lists

Knoll Price List. New, revised price list is divided into two categories — one for the fabric line and one for the furniture line. The fabric list contains key



number, description, net price per yd, width of material and designer's name. Included are fabrics for upholstery, curtains and slip covers, and the complete line of prints. The furniture price list contains item number, description, list price, specifications, dimensions, yardage required for 52-in. material, and local delivery charges in metropolitan New York. Furniture articles included are chairs, tables, chests, cabinets, desks, beds, lamps and cabinet accessories. General information, terms and conditions of sale are given in the back of the lists. 19 pp. combined. Knoll Assoc., Inc., 575 Madison Ave., New York 22, N. Y.

(*Continued on page 236*)



functional beauty that promises quiet

Fiberglas Perforated Acoustical Tile is made for utility. Every cleanly drilled hole is an efficient sound trap. Even its beauty is functional. Fiberglas Perforated Tile is also fire safe and low in cost. And you can clean it easily or repaint it many times without impairing acoustical efficiency. Many other practical advantages. For new design data, call your Fiberglas Acoustical Contractor, nearest Fiberglas Branch Office, or write: Owens-Corning Fiberglas Corporation, Dept. 68-G, Toledo 1, Ohio.

OWENS-CORNING FIBERGLAS

SOUND CONTROL PRODUCTS

FIBERGLAS TEXTURED, PERFORATED & SONOFACED* ACOUSTICAL TILE
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ACOUSTICAL PADS FOR METAL PANS · FIBERGLAS NOISE-STOP* BAFFLES

*Fiberglas (Reg. U. S. Pat. Off.) Sonofaced, Sonocor and Noise-Stop are trade-marks of Owens-Corning Fiberglas Corporation.

lowest cost non-combustible acoustical materials available

Merchandise Mart, Chicago, Illinois, the largest business building in the world—4,023,400 square feet of floor area. Built in 1928 to 1931.

CHICAGO'S FAMOUS MERCHANDISE MART CALLED FOR

Karnak®

WATERPROOFING PRODUCTS

Karnak fabric is packed in sturdy, corrugated cartons for protected shipping and storage. They keep the fabric in perfect condition until used . . . cut fabric loss.

Twenty-five years ago, the problem of protecting the foundation of the "Mart" from hydrostatic head was answered with *Karnak*. Even though the big Chicago River flows beside it, *this Karnak job holds secure.*

Why was *Karnak* chosen? Because it is the membrane system of waterproofing *that holds tight against any water condition.*

Karnak is an open mesh long-fibre cotton cloth that has been heavily impregnated with highly refined asphalt *so as to leave the mesh open.* It is layered, on the job, with alternate moppings of asphalt to *provide a tough, resilient, waterproof membrane.* The non-sticking fabric unrolls easily . . . to the very end. It "works" faster and with no waste . . . saves labor costs.

The *Karnak* Membrane System is best for roof patching, skylight flashing, window and door flashing, through-wall and cornice flashing, as well as waterproofing against a hydrostatic head in dams, swimming pools, viaducts and tunnels. Send coupon for complete information. Manufactured by Lewis Asphalt Engineering Corp., 30 Church Street, New York 7, N. Y.

SEE OUR CATALOG IN SWEETS FILE

OTHER KARNAK PRODUCTS

Asphalt Roof Coatings and Cements	Asphalt Emulsions	Aluminum Roof Coating
Caulking Compounds	Tile Cement	Wood Block Mastic
	Asphalt Paint	Joint Filler

LEWIS ASPHALT ENGINEERING CORP.

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Please send me ***FREE*** information about KARNAK Membrane System of Waterproofing

NAME_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

*Other items I'd like to know about*_____

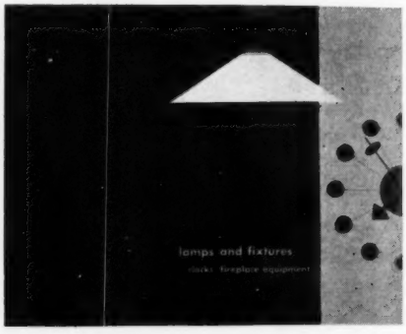
Architectural Engineering

LITERATURE

(*Continued from page 234*)

Contemporary Home Furnishings

Raymor Catalog. Booklet contains outstanding designs of such well known designers as George Nelson, Ben Seibel, Tony Paul, Arno Scheiding and Paul McCobb, representing but a few of the



Section title page of Raymor Catalog

total contributors to today's contemporary home furnishings. The catalog is divided into groups which include 1) Lamps and Fixtures; Clocks and Fireplace Equipment 2) Furniture 3) Accessories and 4) Serving Accessories. Each item is photographed with accompanying description of size, material, colors available, price, and in most cases the designer's name. A handy pocket on the inside back cover is provided for filing forthcoming information on new articles. 64 pp., illus. Richards Morgenthau & Co., 225 Fifth Ave., New York 10. N. Y.

Movable Fireproof Partitions

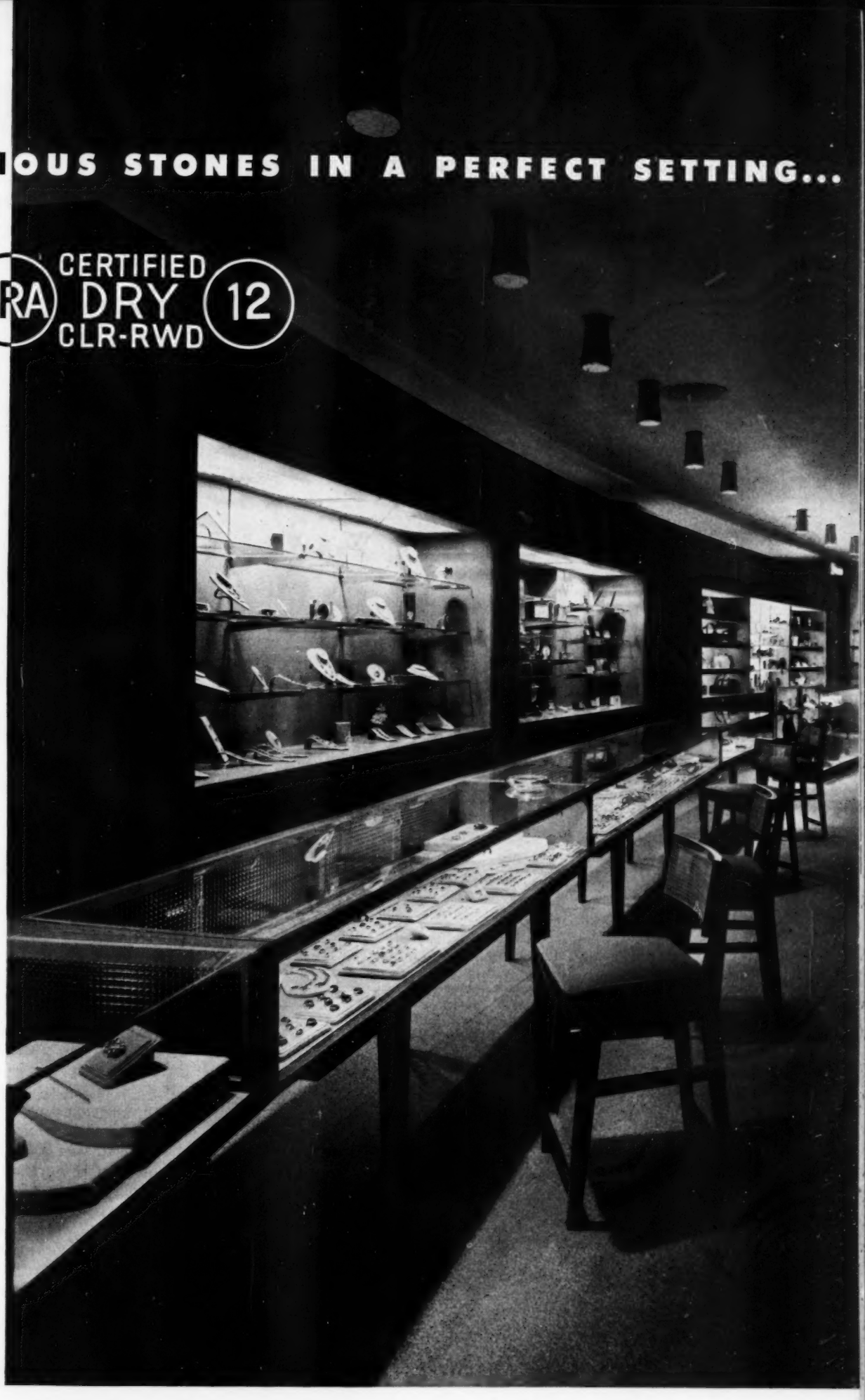
Safety Calls For Mobil Fire Walls. Brochure describes this Underwriters' Approved one-hour movable steel partition. Composition and test requirements as well as detailed drawings are given. Suggested places where the partition will serve the most efficient purposes are storage areas and other special spaces in public buildings, schools, hospitals, laboratories, communication companies and factories. 4 pp., illus. Virginia Metal Products Corporation, 1112 First National Bank Building, Dept. MF, Pittsburgh 22, Pa.*

(*Continued on page 238*)

PRECIOUS STONES IN A PERFECT SETTING...

CRA CERTIFIED DRY 12 CLR-RWD

Naturally beautiful . . . skillfully processed . . . CRA Redwood has proven an ideal material for striking commercial design. Here, as in residential work, the architect has learned to rely on this grade-marked, trade-marked lumber for uniform quality, beauty, performance.



Peacock Jewelry Store,
La Grange, Ill.

Harper Richards, AIA
Architect

CALIFORNIA **REDWOOD** ASSOCIATION
576 SACRAMENTO STREET, SAN FRANCISCO 11

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ber Co • Holmes Eureka Lumber Co • Northern Redwood Lumber Co • Pacific Lumber

Another Globe Elevator!

America's Most Economical Elevator to Install, Operate and Maintain for
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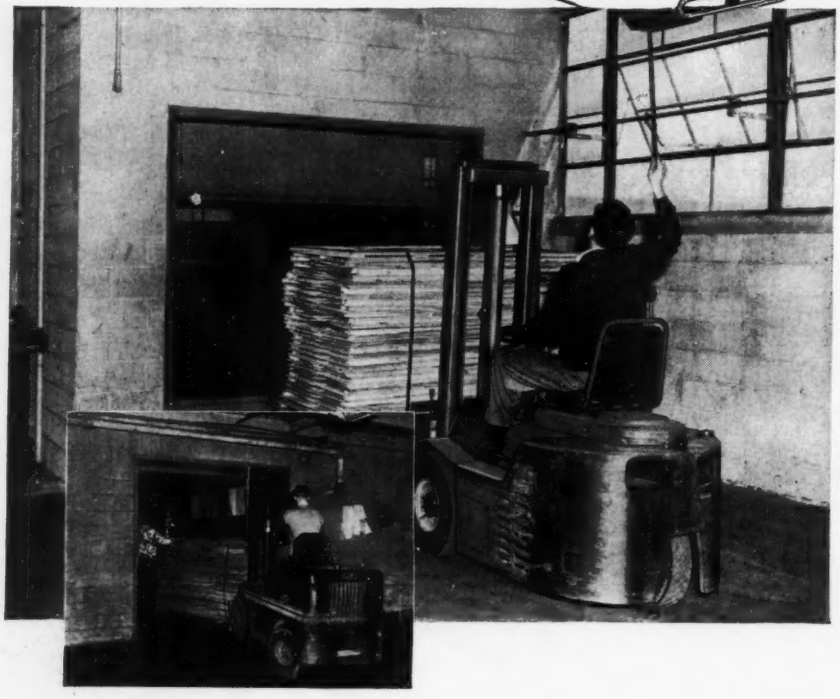
✓ PLANTS
STORES
WAREHOUSES



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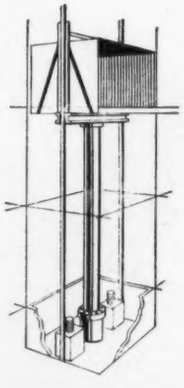

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LITERATURE

(*Continued from page 236*)

Lighting for Service Stations

Guardian, the Finest in Service Station Lighting. Catalog contains information on all types of the manufacturer's service station lighting equipment and accessories. Data is included on horizontal fluorescent "T" lights, island lights, wall lights, lampholders, splice boxes, reflectors, sign lighting units, brackets and poles. Specifications of all units are given and photographs point out the more important features of the various parts of some of the fixtures. Line drawings indicate typical island lighting plans, and complete ft-c readings for all units are given. The booklet contains five pages for note-taking, and a price list for the whole line is found on the last pages. 44 pp., illus. Guardian Light Co., 301 Lake St., Oak Park, Ill.

Redwood Siding

Redwood Siding: Application and Finishing (*Data Sheet 3A4-1*). Folder explains simple but essential precautions necessary in installation and finishing of redwood siding. Notes on cutting and fitting as well as on nailing of patterns are included. 4 pp., illus. California Redwood Association, 576 Sacramento St., San Francisco 11, Calif.*

Hardware Maintenance

Care, Adjustment and Maintenance of Your Russwin Builders' Hardware. This comprehensive little manual furnishes directions for servicing and minor adjustment, regulation and maintenance of the manufacturer's varied items of builders' hardware. Keyed illustrations are employed with the text to clarify procedures. Among the various hardware for which information is included are the following: door closers (including the "400" door closer), mortise locks and latches, lock cylinders, door knobs, door butts, fire exit bolts, overhead door holders, and door stops and holders. 43 pp., illus. Russell & Erwin Div., The American Hardware Corp., New Britain, Conn.*

(*Continued on page 242*)

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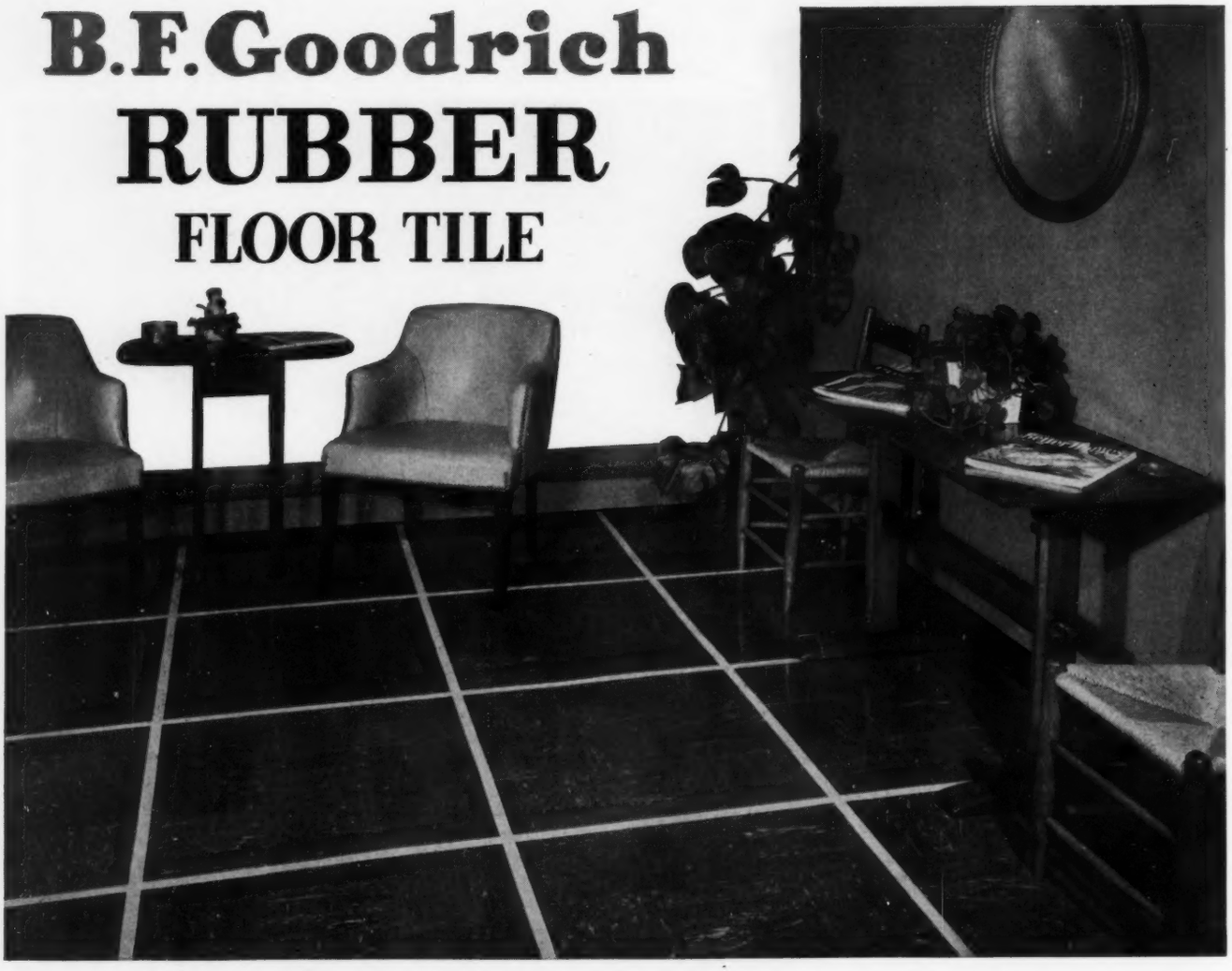

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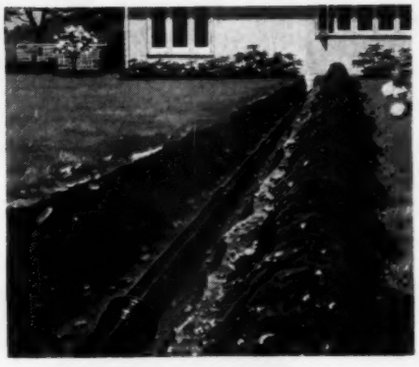

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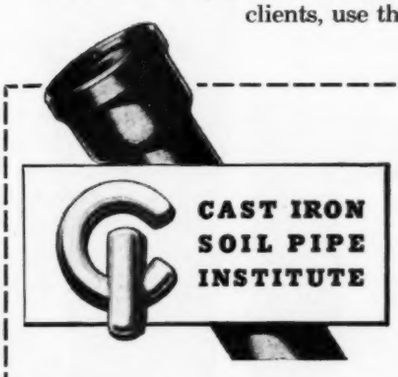

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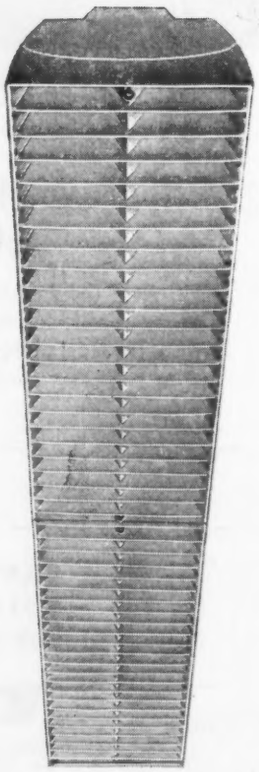

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LITERATURE

(*Continued from page 238*)

Ventilating Installations

Jenn-Air Exhausters. Brochure describes exhausters for wall or roof installation. Advantages are cited and a list of applications is included. Wall and roof exhauster performance data is contained in the brochure, with information on axial and centrifugal roof exhausters. 4 pp., illus. Jenn-Air Exhausters, Architects Bldg., 333 N. Pennsylvania St., Indianapolis 4, Ind.

Window Treatment

Inspirations for Interior Designers. Booklet contains complete descriptions of such materials as "Tapestron," "Wood Loom," "Bambini," bamboo and other wooden and plastic materials used in shades, blinds and other window treatments. General information includes measuring instructions and method to follow in ordering. A description of tier curtains in woven wood, and a complete retail price list for the entire line are also included with the booklet. The Holland Shade Co., 999 Third Ave., New York 22, N. Y.

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

Roger F. Buzzard, Architect, 532 W. Park Ave., Barberton, Ohio.

M. Galal Eddin, Architect, 6 Haggag St., Roda, Cairo, Egypt.

Howard A. Korns, Architect, 8½ S. Ludlow, Dayton 2, Ohio.

J. M. Little and Assoc., Industrial Designers, 1217 Madison Ave., Toledo 2, Ohio.

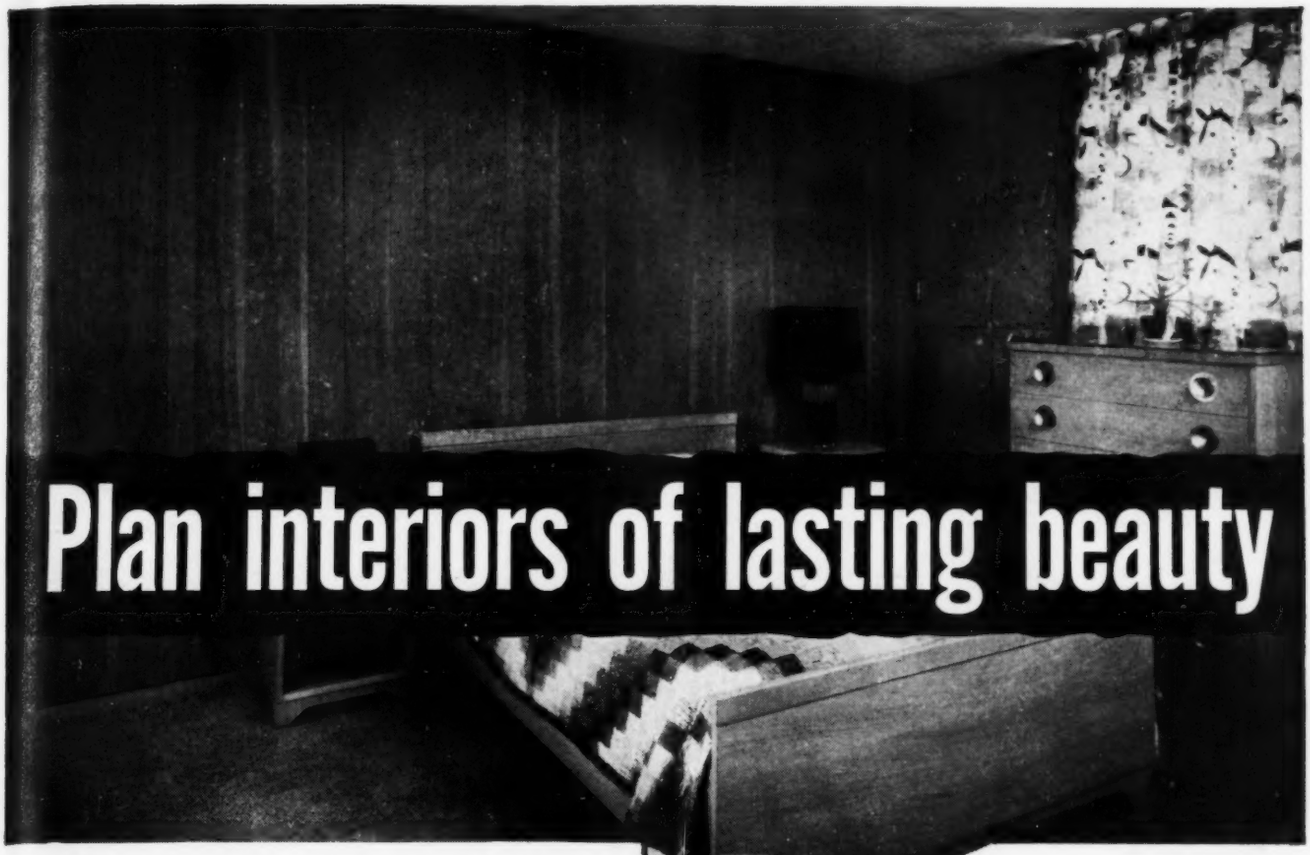
Don R. Livergood, Architect, 40 Norwood Dr., Decatur, Ill.

Stephen J. Mathews, Architect, 1133 Arrott St., Philadelphia 24, Pa.

Edla Muir, Architect, Route 3, Box 123, Ellensburg, Wash.

John Nicholson, Student, P. O. Box 427, Hemet, Calif.

Edward J. Parnum, Architect, 1225 Vine St., Philadelphia 7, Pa.



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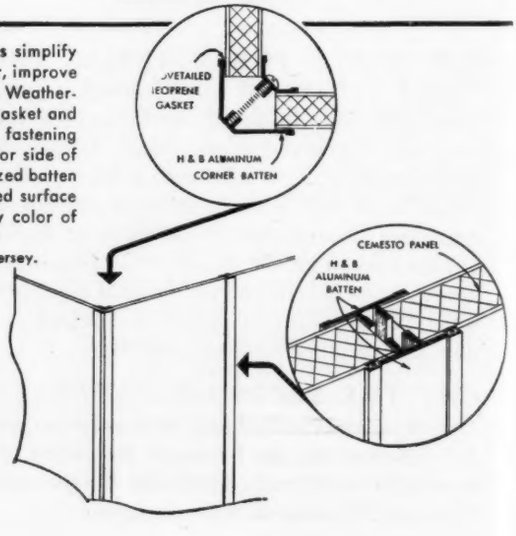

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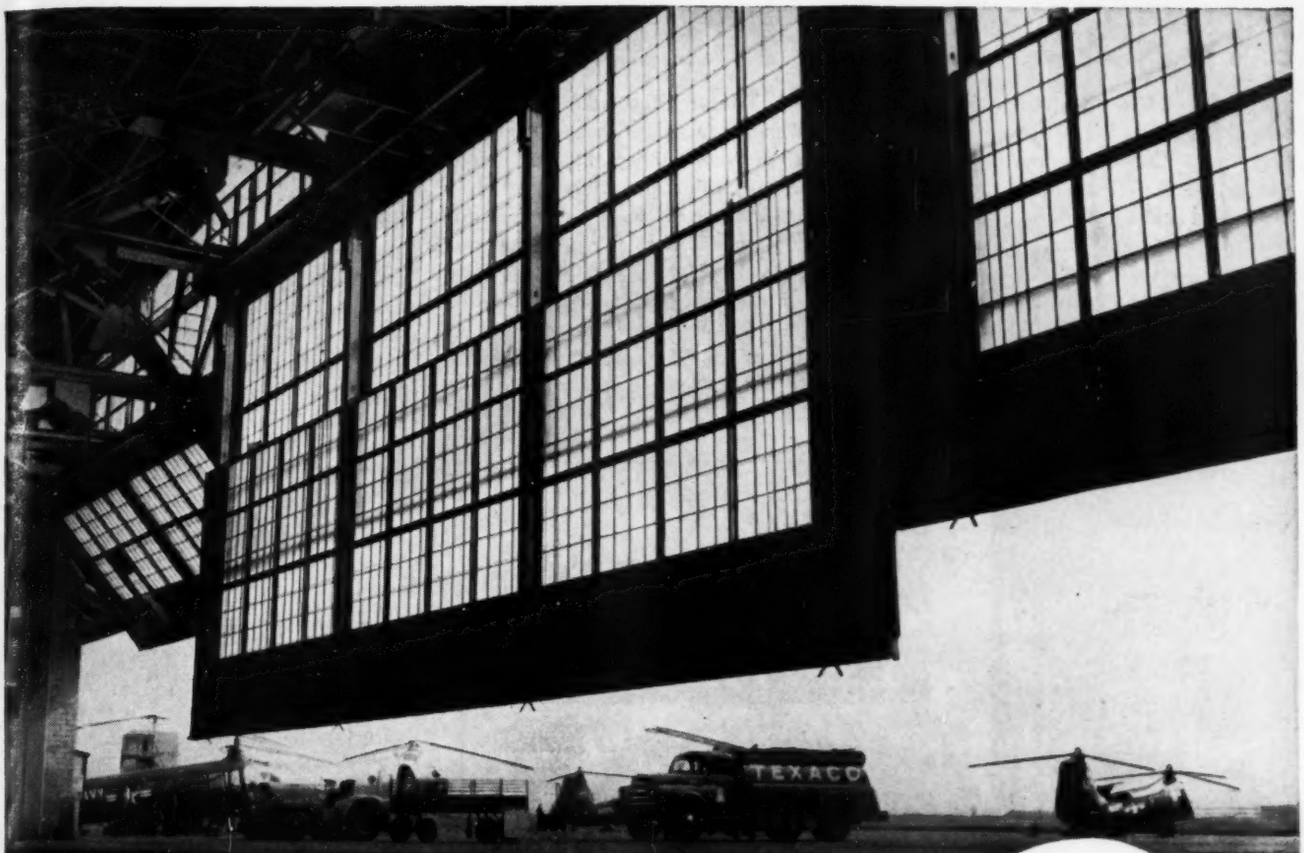

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BY JOSEPH V. HUDNUT

(*Continued from page 152*)

perceptions of circumstances and form from among the meanings of the word *expression*. That a skyscraper is by nature cellular and therefore should appear to be cellular is a just principle of design, but it is a principle which belongs in a scientific system of thought. The cellular nature was not imposed by the artist's feeling or even by his will but is *a priori* a condition of the thing to be done — and therefore of the thing to be described. The architect who clearly exhibits such a fact does so as a scientist. He offers us an intellectual satisfaction, a true description and analysis which is — and often ought to be — a prerequisite to expression. It is a pity that our recognition of such descriptive values should obscure our understanding of expression as an artist's métier.

I have defined expression in architecture as the manifestation of an idea or feeling in constructed form. Expression implies, therefore, the existence of idea and feeling. These are not characteristics of steel but of men. Buildings can set forth in their appearances their purposes and their anatomies, but they cannot tell us how they feel about purpose or anatomy. Buildings, except in the metaphors of critics, are never honest, truthful, frank, free of fraud, or even mature of judgment, and if they give us any assurance of such respectability that is because we have accommodated scientific knowledge to an ethical analogy. The artist is honest and mature of judgment, not his building.

Expression, in the second place, *is independent of social consciousness*.

There are many people who, although they perceive that expression in architecture is individual in origin, believe nevertheless that it is actually created by a social force which in some way directs the individual artist. Architecture, good or bad, thus becomes a *symptom* of a state of society. When, for example, a people is stirred by some great ideal or some national achievement, the artist is the medium through which that general emotion is fused into works of art; and when, on the other hand, the general life becomes humdrum and the general spirit decadent, the artist is deprived of those conditions which are essential to artistic activity. And this theory is especially persuasive when applied to architecture, an art which rests so closely upon the life of men in associations as to be called a social art. Society, it is said, is the true designer, and the architect is merely society's instrument.

If this were true great architecture could only exist in a just and happy society. Since there never has been a just and happy society there would be no great architecture in the world. And certainly great architecture is much more rare than great crises, whether moral or political, in the life of mankind. The Reformation produced no supremely great architecture, nor did the French Revolution; and the architecture which followed our own Civil War — a moral crisis if ever there was one — has served only to assist the immortality of General Grant.

In truth the themes of architecture are always with us. Whether nations are flourishing or fighting in great wars for their existences or retreating into mysticism or extending by great discoveries

(*Continued on page 248*)

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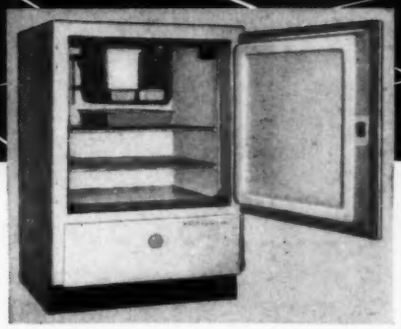

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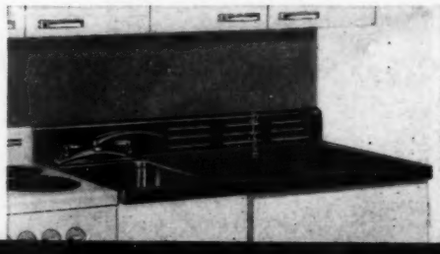

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BY JOSEPH V. HUDNUT

(*Continued from page 246*)

the range of human knowledge, the deep and general currents of human life remain unchanged. I do not say that an architect will not identify his ideas with those that are public, or that he will not be moved by these ideas; I mean that the ideas which the architect celebrates are not endemic to an era; that they are independent of conduct and social values when these are specific to a population.

Expression in architecture is not description, expression is independent of social consciousness, and, in the third place, *expression in architecture is independent of opinion.* Architecture expresses an idea or feeling which is related to the general spiritual life of its time, but it does not record our judgments. Buildings do not argue, convert, or persuade, and if they clarify or intensify a conviction they do so indirectly by heightening some feeling which we — and not the building — have associated with our conviction. Sloping roofs embracing a great chimney may approve by the sentiment they embody our own belief in the sanctity of marriage, but the opinion is ours, not theirs. A granite temple on Main Street defines a bank as explicitly as the legend on its architrave and may as readily reassure our faith in a capitalistic economy, but the assurance is ours, not that of the bank. Buildings have no words.

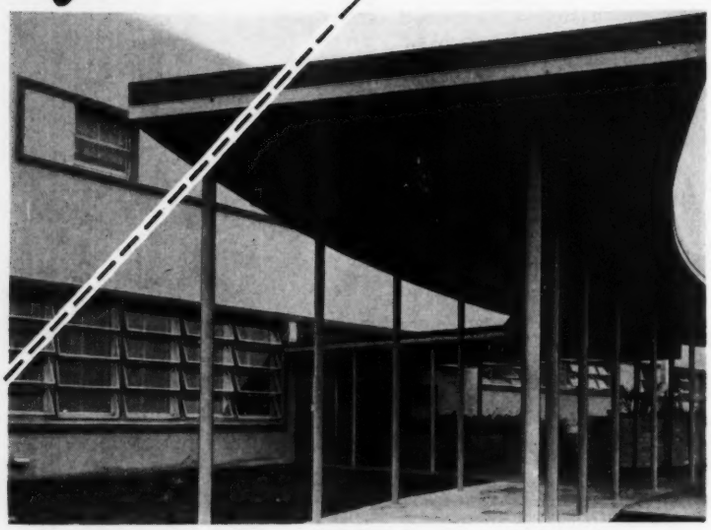
A spire may express a Christian sentiment, but it cannot affirm, except by indirection, the doctrine of the Trinity — or the authority of the Tenth Commandment. This upward movement of mass and line and silhouette, this subtle dissolution of form from firm-embedded base to unsubstantial point, this progression from one state to another — these may convey a sense of movement toward God and of that resolution of corporeal material into spirit which is the essence of the Christian faith. And yet the spire tells me nothing, except as symbol, of the doctrinal nature of that faith. I capture the feeling of the architect; his experience illumines my experience; but Christian legend and tenet are not here. There is no sermon, no conversion, in a spire. There may be expression, and, if so, the expression will remain even were it to be proved that God does not exist.

After this brief exposition of critical standards I shall now return to the concept of democratic expression. I shall not challenge the idea of Louis Sullivan that architecture ought to be democratic, and I shall leave to the sociologist the question whether or not society is or ought to be organic. I shall ask only if architecture *can* be democratic and if so in what way.

It is sometimes said that certain buildings have a presumptive democracy — that is, they are in themselves democratic without the aid of art. They do so, for example, by being plain, expense being always an evidence of aristocratic taste, or by being informal, decorum being a confession of aloofness and artificiality, or by being primitive, the noble savage being of course the most democratic of men. There are also types of buildings which may suggest equality; for, although no one conforms to esthetic conventions more rigorously than does the aristocrat, there are certain standardizations of thought and conduct which are of so instinctive a

(*Continued on page 250*)

Unequalled



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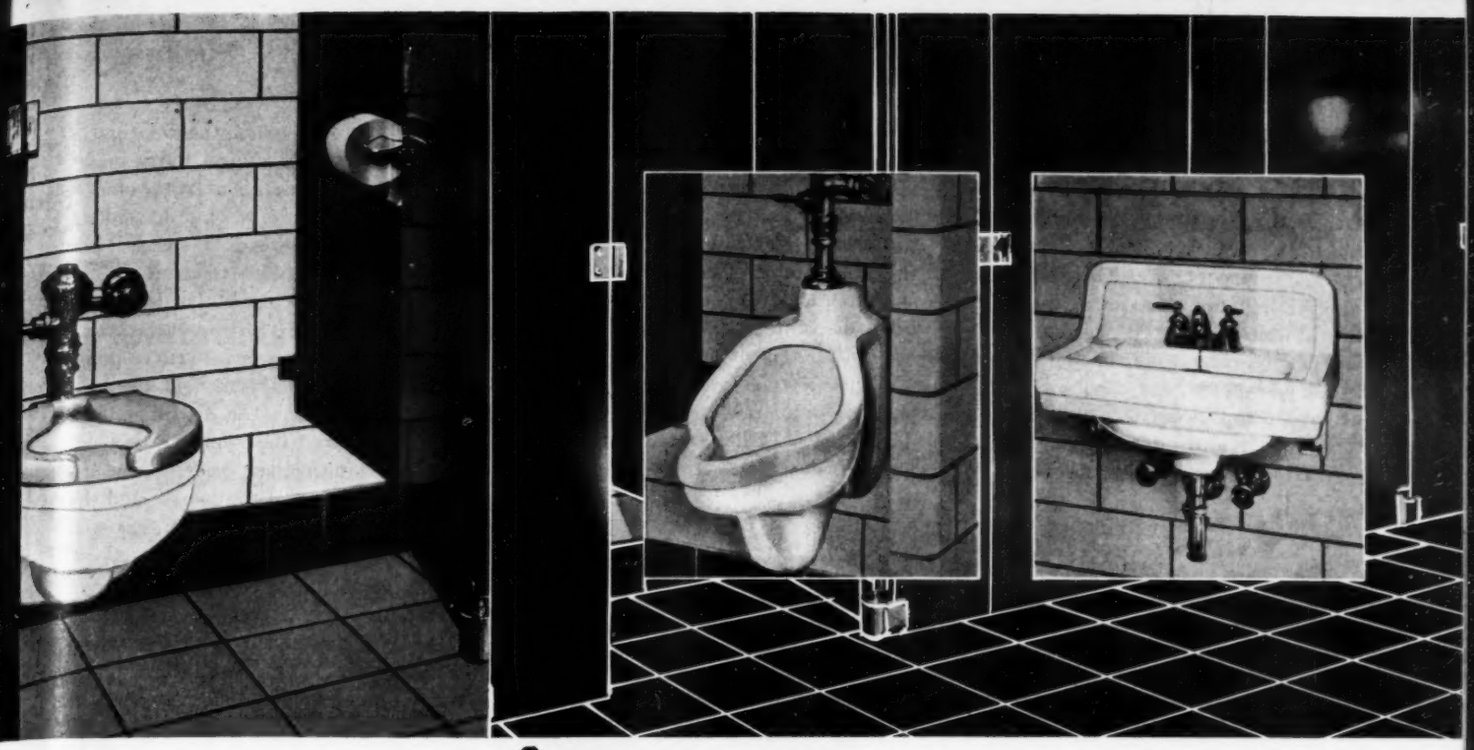

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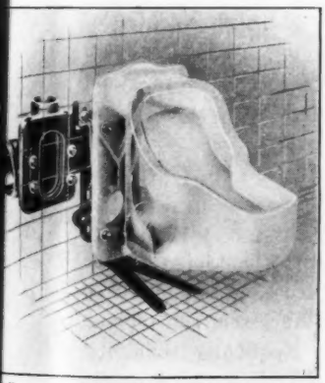

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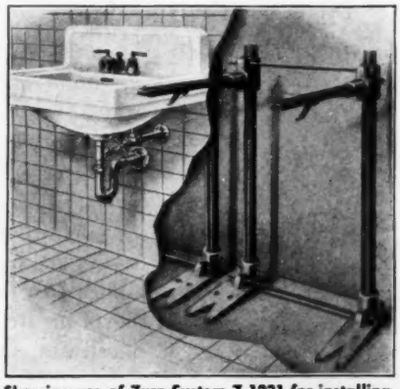

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BY JOSEPH V. HUDNUT

(*Continued from page 248*)

character as to seem not conventions having their sanction in social usage but natural phenomena. The Cape Cod cottage is, I suppose, such a phenomenon. And, finally, there are architectural forms which have become symbols of democracy. The dome of the Roman Pantheon was such a symbol to Thomas Jefferson; and in our own time a great American architect, after telling us that "every building signifies a state of affairs," finds that his cylindrical museum, "cast like an egg-shell, with great simplicity," signifies the sovereignty of the individual. These are obviously sentimentalities — judgments based upon association and prejudice — and need not detain us here.

A more widely accepted notion of democratic expression in architecture is illustrated by those buildings of our time which have their origins, or which are believed to have had their origins, in collective action. I do not mean buildings erected by the state or by the church for the use of state or church, and, of course, I do not mean buildings built by commercial or industrial corporations — although these might be defined in much the same terms — but buildings built by the people's servants in response to the people's demands and the people's needs. These, the instruments of democracy, are called democratic since they proclaim in their evident serviceability the welfare of the masses and the responsibility of the state for that welfare.

The most characteristic exemplar of such democratic expression — if such it be — is public housing. Here if anywhere is an arresting and palpable demonstration of a collective solicitude for the common man, who is not only provided at public expense with a humane environment but, at the same time, is rescued from the inhumanities of the slums. The dignity of man is asserted, at least so far as dignity is consistent with uniformity, and his claim upon society for a certain decency of physical circumstance is protected. The people have used their collective strength to attack a collective evil and to resolve a collective dilemma. Democracy is thus allied with a compassionate impulse, and to both of these are added, not always perhaps by preference, the Spartan virtues of austerity, reasonable directness, and reticent honesty with which romance always surrounds the simple annals of the poor. The housing project thus describes democracy. These monstrous and formless buildings speak to us of equality, of security, of a contempt for luxury and the efflorescences of life and, incidentally, of that "respect, gratitude and esteem" for mankind which Le Corbusier assures us is a moral sentiment of an enlightened man.

The schoolhouse also illustrates the democratic attitude and way of life, especially when it escapes all of those traditional patterns which have become integral to the decorous and artificial life of the Renaissance. The schoolhouse illustrates, more eloquently than any other artifact of our civilization, equality of opportunity. That is one reason no doubt for that "peaceful horizontality" which is now the fashion in school building, for that "openness" which connotes freedom not in space merely but in human relationships, and for that

(*Continued on page 252*)

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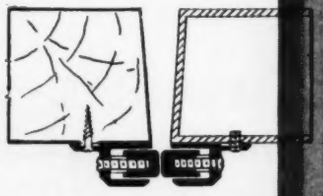

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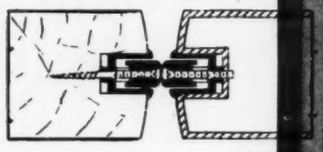
may be applied to either wood or hollow metal bevel doors, or as a stop bead.



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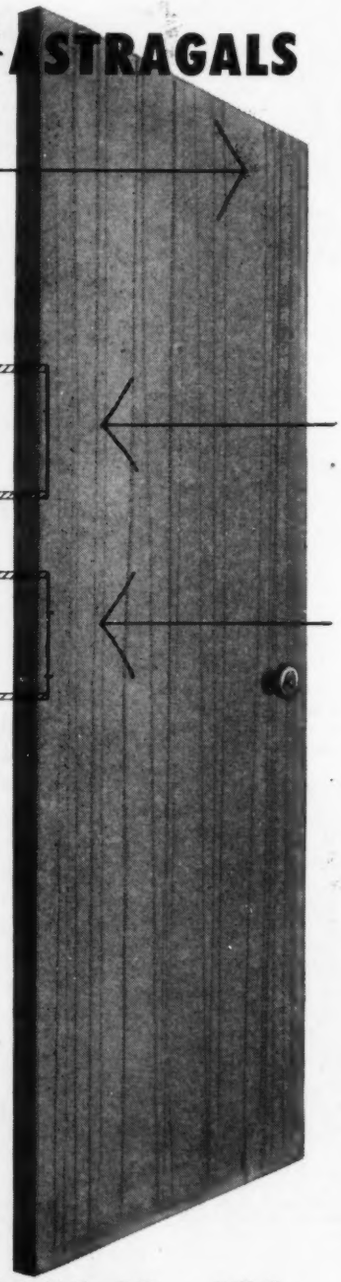
is for bullnose hollow metal or wood doors (double acting).



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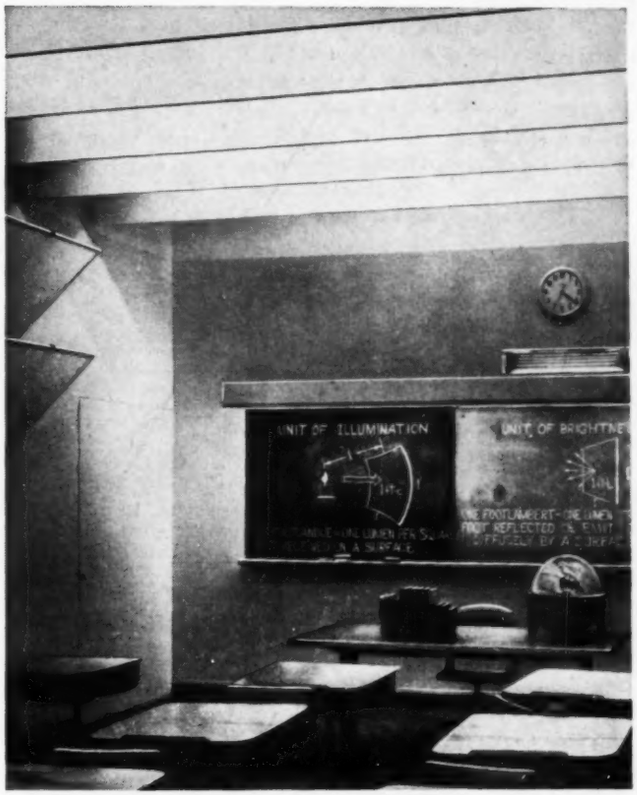

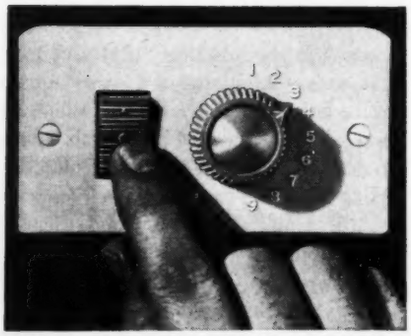

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THE THREE LAMPS OF MODERN ARCHITECTURE

BY JOSEPH V. HUDNUT

(*Continued from page 250*)

pinch of socialism in a workshop efficiency. These, like housing projects, describe democracy — the democracy of the humanitarian — and that somewhat hortative concept is as unmistakable also in the architecture of our public parks and oceanside developments, in our new shopping centers, in the master plans for the reconstruction of our cities, and even in our new highways. Equality of opportunity is never more perfectly expressed than by the traffic police.

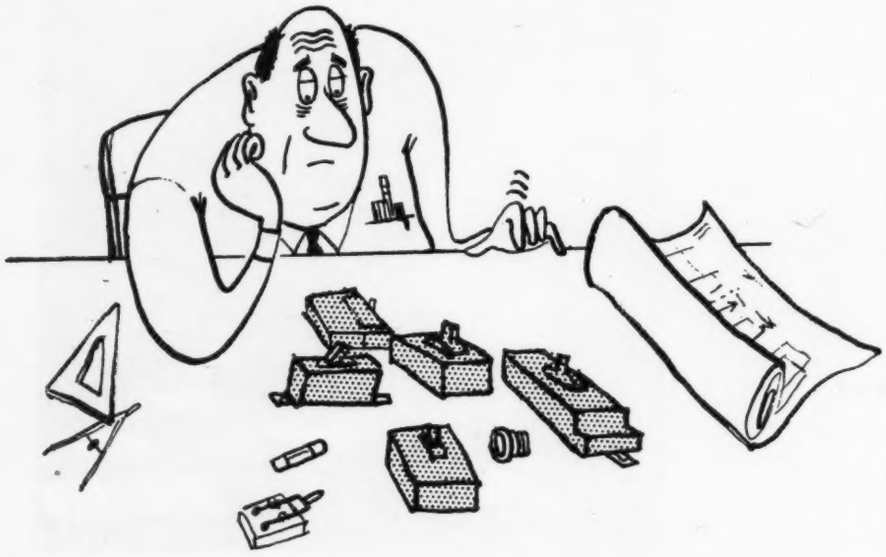
Beneath the humanitarian emphasis in all such works of art — a term which assumes the necessity of expression — there lies the somewhat deeper sentiment of a common citizenship, not in the political and social scene only, but in all forms of social reconstruction. We read in these creations of the collective will a certain nobility which springs from co-operative effort; our labor is addressed not to individual advancement merely but to social improvement and the good life; and that consciousness which lifts industrial labor above the dull uniformities of machine production illumines these, the structures which industrial labor has raised. Housing projects, schools, shopping centers, and clover-leaf intersections are thus tinctured with that optimism which men feel when their efforts are shared and directed toward a mutual betterment.

Such an optimism is that which the German romanticists — and, after them, William Morris — discovered in the industrial system of the Middle Ages. The glorification of the guild system, of the worker as artist, of the master builder as mason, of Gothic architecture as the product of liberated cities, is the foundation in no small part of the contemporary faith in industrial co-operation in architecture. It is the source of an ethical flavor in the idea of architecture as industrial design. It is a cornerstone in the theology of the *Deutsche Werkbund.*

If we will put aside such wishful revisions of history, and put aside the equally romantic notion that in buildings which reflect the industrial processes of our time it is the machine and not man who creates, we shall be able to assess more clearly the true nature of the many buildings which, as I have tried to show, have a democratic origin and use. These are in harmony with their social environment and are, therefore, integral to whatever is democratic in that environment. They illustrate democracy in the same way that a church illustrates Christianity, a courthouse, justice before the law. They are factual descriptions of a way of life and thought; molded by a way of life and thought; setting forth the circumstances of a way of life and thought. Nevertheless, illustration and factual description are not expression, whatever sentiments we may project upon them, whatever intellectual satisfactions may spring from them.

I do not mean that housing projects and schools may not be expressive. They may be, and sometimes are, works of art, objectifications of an artist's experiences, the pegs upon which he hangs his own feeling. I mean that they are not *in themselves* expressive — expressive, that is, by reason of their origin and use and social relevance. The sentiment and meaning they sometimes possess is

(*Continued on page 254*)



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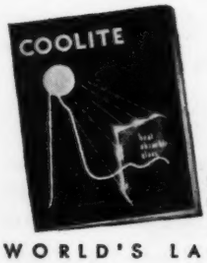

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BY JOSEPH V. HUDNUT

(*Continued from page 252*)

attained in the same way that sentiment and meaning are attained by a plough or by a suit of overalls — or by a tiara. A plough may evoke memories of rural life, of sturdy and useful labor, of health and freedom and space; and a tiara may evoke resentment.

The source of our confusion of thought in this matter arises, I think, from a belief that democratic purpose must necessarily give democratic character. We are building our opinion. Because, in our opinion, democracy is promoted by public housing and public schools these, we think, must express democracy. But we have, in effect, merely associated our opinion with a type of building. Our opinion — or let us say our conviction — may be a mistaken one; how then should we call a housing project democratic?

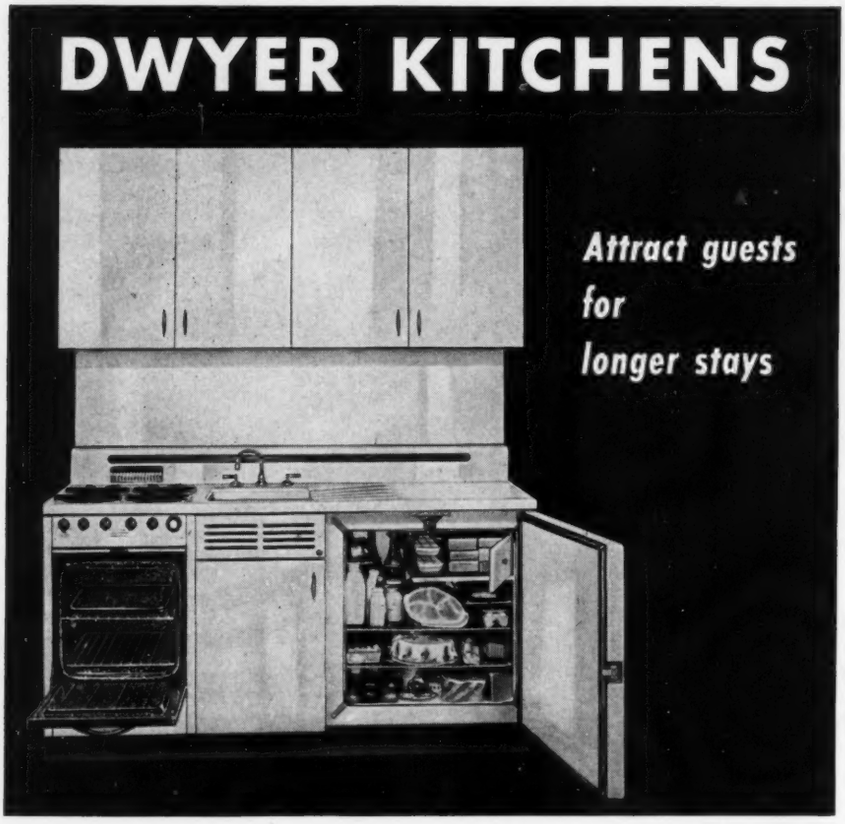
There exists today a considerable number of architects, among them at least one architect of great distinction, who find that housing projects are, in their expression at least, undemocratic. "The very soul of democracy," says Frank Lloyd Wright, "is individuality." Democracy, he tells us, means the recognition of the qualities of the individual, a greater respect for the nature of individuality. The housing which denies the personality of the people who live in it, whatever may be the "collective spirit and creative unity" from which it sprang, is in its sociological aspects no better than the dreary tenements which once covered street after street of the eastern area of lower Manhattan.

Thus, a type of building commanding our imagination as a symbol of democracy — broad in its conception, precise in its mechanization, practical in its economy, humane in its solicitudes for space, sunlight, and order — is changed, by opinion, into a symbol of commercialized tyranny. And it would be quite possible for those who favor a parochial school to discover a corresponding tyranny in those public schools in which, as we know, a religious education is excluded. Such antitheses of judgments will obtain wherever artistic character is made to rest upon political or social appraisals.

Frank Lloyd Wright has proposed in his *Broadacre City* a balance between the democratic doctrine of equality and the equally democratic doctrine of individualism. These are, it appears, capable of reconciliation in Utopia. Each family is to have its house and its acre of ground, but, unlike the famous project of Governor Oglethorpe for the city of Savannah, the houses are not uniform. Many contingencies of family life are provided for: differences in modes of life, in the economies of living, even in irrational preferences. The possibility that one citizen may be more industrious than another or more fortunate in the natural aptitudes of his children is foreseen; and foreseen also is the need of every man to impress on his environment some hint of his own desire. This reconciliation, in human history never yet accomplished, is called an expression of democracy.

We ought to recognize Broadacre City — and our thousand other projects for the perfection of the human race — as illustrations, or physical embodiments, of social and political opinion. Ledoux

(*Continued on page 256*)



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BY JOSEPH V. HUDNUT

(*Continued from page 254*)

proposed such a symbol in a great wheel of human life laid out around his "arsenal," and Le Corbusier defended with a political dialectic his noble and superhuman project for the rebuilding of Paris. The reformer, not the artist, speaks in such documentary architectures. There are moments when even Wright forgets to be an artist.

Louis Sullivan seems to have been considerably perplexed by this apparent inconsistency between architecture as a social science and architecture as individual creativeness. He found a solution in the notion that the artist will voluntarily submit his art to the collectivist program. The artist must find his happiness in subordination. And having said this, Louis Sullivan assures us that the individual spirit is the essence of democracy: "Democracy is primarily of the individual." It would appear then that democracy means both collectivism and individualism: it is to embody not one, but two opinions. The architect is an artist, and therefore some thought of his own, some feeling of his own, about the work to be done, must enter into all that he has to do; and yet these regimentations of living, which are the consequences of machine techniques and equalitarian doctrine, must be accepted as the bases of his art.

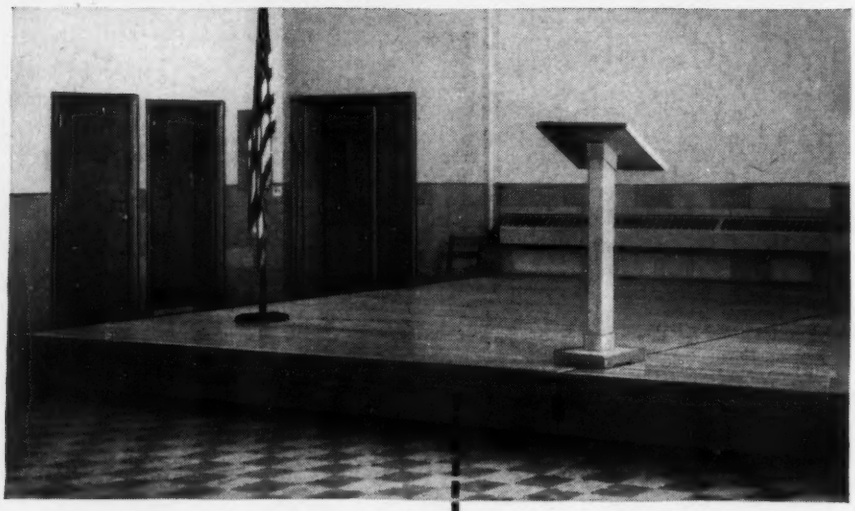
Let us assume that this dilemma is real. What then is the source of democratic expression in a building built under such conditions? Is it the regimentation that is democratic or the individual struggling to liberate his own creative power under the crushing weight of his technologies and his social doctrine? And if to this weight we add another opinion — our opinion that it is not he but his technologies that are expressive — we must not reproach our architects for the death of architecture.

We ought to accept this fact unreservedly and without rebellion: opinion cannot be expressed in architecture. Opinion can be illustrated, opinion may be demonstrated, opinion may inhabit a symbol, but opinion cannot be expressed. Expression, the supreme law of art, has its beginning in individual insight and individual creativeness and when it informs a building resides within it as Aladdin resided in his palace, sovereign and independent of fact, of social consciousness, and of opinion.

The word democratic when applied to a building is either fact, or social consciousness, or opinion. There is in it always a flavor of propaganda — or, to use a more agreeable word, education. Our housing projects and our new public schools are often more nearly argument than architecture. They fight for social ameliorations, and in so far as they fight they deserve our applause. I am heartily in favor, within reason, of housing projects and public schools, and my desire to give them architectural excellence ought not to bring into question my loyalty to that other cause which they embody with greater success. My reproach is not addressed to those who give a social serviceability to buildings but to those who mistake social purpose and scientific efficiency for architecture. A lamp has been lighted in an avenue outside the garden of art to divert us trom the true excellence of our art. The lamp shines brightly, but it need not shine in our eyes.

THE END

FOLDING STAGES



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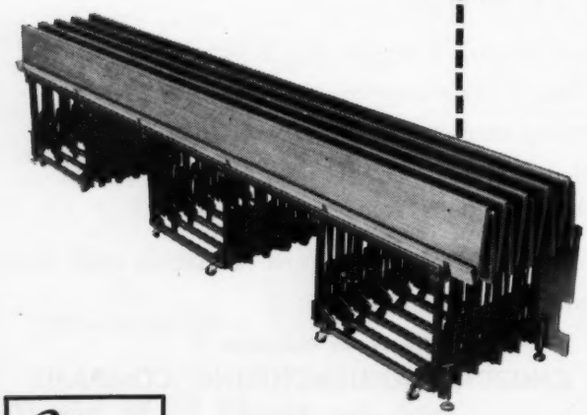

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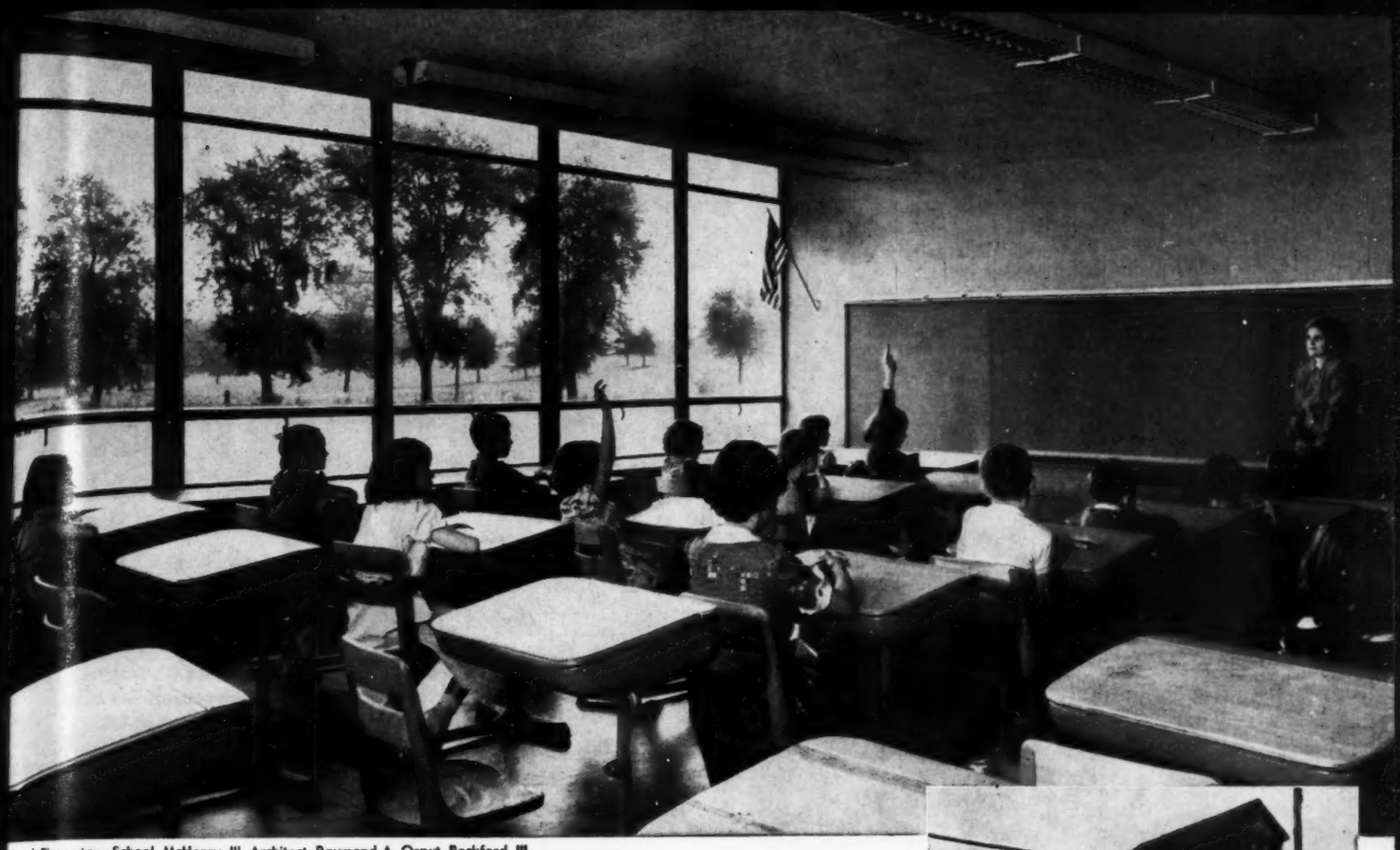

ebrook Elementary School, McHenry, Ill. Architect: Raymond A. Orput, Rockford, Ill.

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There are many other good reasons for Daylight Walls. Illumination costs are reduced. Clear, flat glass admits more natural light than glass in any other form. When properly used, it can eliminate shadows, which cause glaring contrasts and eye discomfort. Notice the evenness of the lighting in this photograph taken without the aid of artificial lights.

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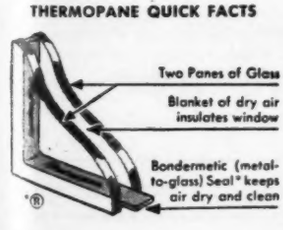
If you design schools, you will enjoy reading the newest authoritative book on daylight illumination, *How to Get Nature-Quality Light for School Children.* Principles set forth are applicable for other buildings, too. For a free copy write Libbey·Owens·Ford Glass Co., 4173 Nicholas Bldg., Toledo 3, Ohio. *®

THERMOPANE QUICK FACTS



Thermopane insulating glass is widely and successfully used. *Thermopane* with ½" of dry air hermetically sealed between two panes has twice the insulating value of single glass. This minimizes chilliness, drafts and heat loss at windows in winter. *Thermopane* cuts air-conditioning costs by reducing the amount of heat entering during summer. It cuts out 44% more noise than single glass. Write for *Thermopane* literature. Libbey-Owens-Ford Glass Company, 4173 Nicholas Building, Toledo 3, Ohio.

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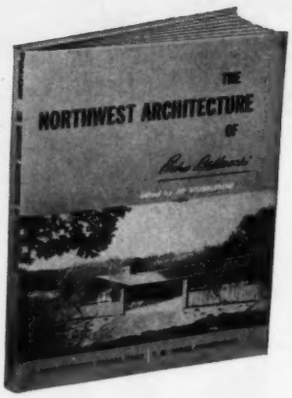
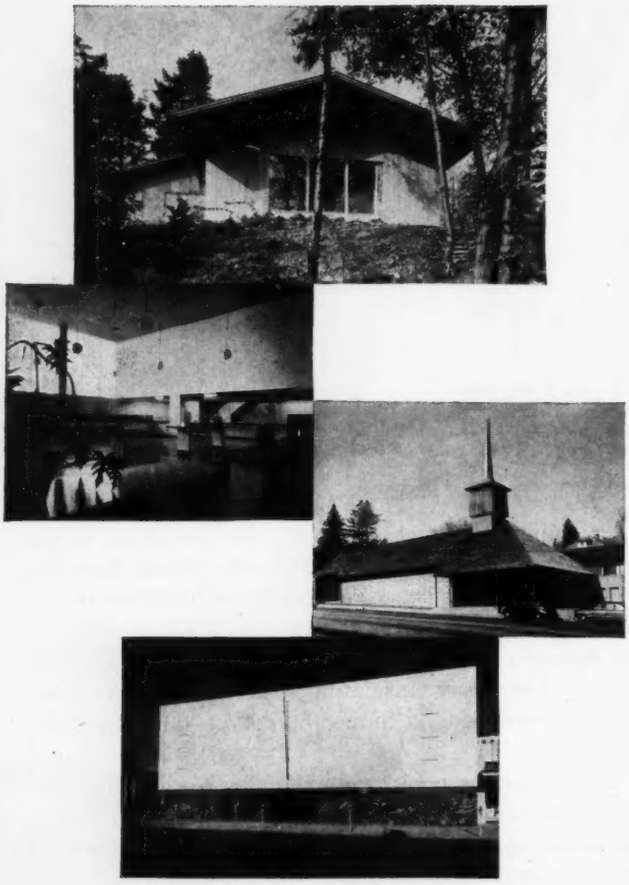


The Northwest Architecture of PIETRO BELLUSCHI



"A house or a building is modern, not because it has a flat roof or a butterfly roof, continuous vertical spandrels, or horizontal spandrels, lally columns, or plastic bubbles, but rather because it has recognized the meaning of space in relation to its purpose, and to its setting; because, I repeat again, it has solved in a free, and creative way all the many social, economic, regional, emotional and practical limitations peculiar to the problem at hand."

PIETRO BELLUSCHI

Presented here for the first time in book form is a photographic study of the superb work of Pietro Belluschi, one of America's most gifted architects, and a prominent exponent of the bold and virile contemporary design of the Pacific Northwest.

Pictured in these pages is a representative selection of Belluschi-designed houses, churches, and commercial buildings of various kinds, many of which have won world-wide fame. These structures display "Northwest Modern" at its very best—an architectural expression of the rugged terrain, the bracing climate, and the pioneering spirit that characterizes the region and its people. Utterly devoid of sham and mannerism, Mr. Belluschi's buildings possess a simple grace of line and form, a dignity and distinction, that make them works of sheer beauty.

Edited by one of his former pupils, this book quotes at length from Mr. Belluschi's well-articulated philosophy of design, and explains his personal views on the architect's role in mid-century society. Here at last is a book that pays a deserved tribute to one of the truly great architects of our age.

PARTIAL CONTENTS

Part I.
About Belluschi Himself

Part II.
In Belluschi's Words
Architecture & Society
The Role of the Modern Museum in Our New Civilization
Church Architecture
The Responsibility of the Architect in the World of Today
Houses
Our Readiness for Better Architecture

Part III.
From Belluschi's Work
Art Museum, Portland, Oregon
Oregonian Building, Portland, Oregon
Finlay Mortuary, Portland, Oregon
Houses (30 pages)
Oregon State Hospital
St. Thomas More Chapel, Portland, Oregon
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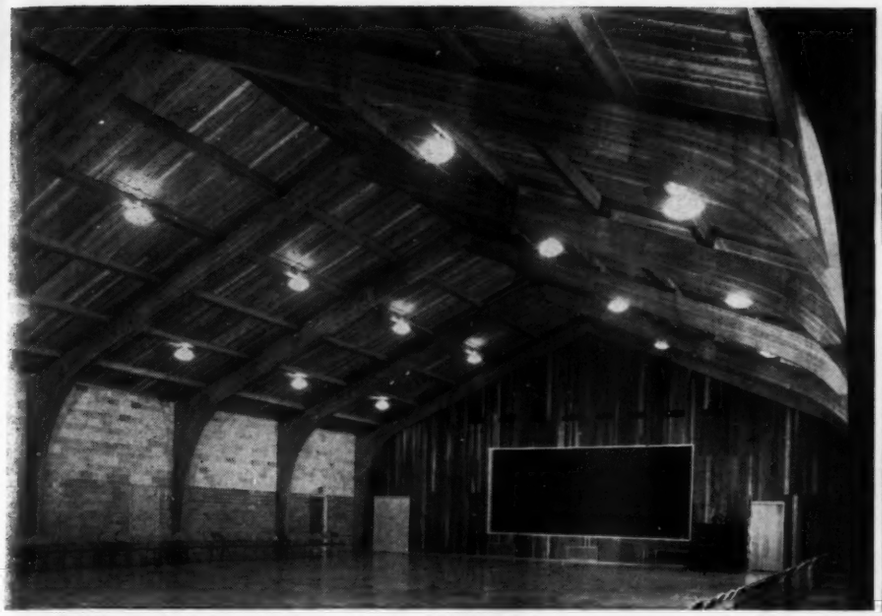

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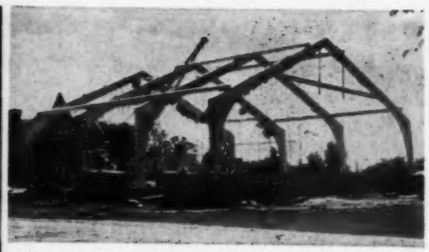

Elementary school gymnasium at Gladstone, Minnesota, designed by architects Ingemannn and Bergstedt, St. Paul.

A classroom in the Goodhue County School, at Vasa, Minnesota, designed by architects Max and Gerald Buetow, St. Paul.

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WATER VAPOR

(*Continued from page 182*)

Hygroscopic materials may transmit water by several means.

First, some vapor is transmitted through the fibers themselves as a liquid. The vapor is absorbed by the fibers and is transformed into a liquid state. As it reaches the opposite surface, the moisture is re-evaporated into a gas or vapor and transmitted to the air. This is called absorption.

Part of the moisture, or water vapor, passes through the material in a vapor state in quantities depending upon the vapor pressure difference and the resistance of the material itself. This is called diffusion. This resistance obviously is dependent upon the density and the size of the fibers within the material.

The diffusion of vapor through a hygroscopic material may be relatively small yet its ability to transmit moisture or vapor may be extremely high because of its ability to absorb, transmit, and re-evaporate the moisture passing through it.

A special water-repellent treatment of the hygroscopic fibers reduces the quantity of moisture transmitted hygroscopically. However, the quantity transmitted by diffusion may not be altered unless the voids or air spaces between the fibers are sealed off.

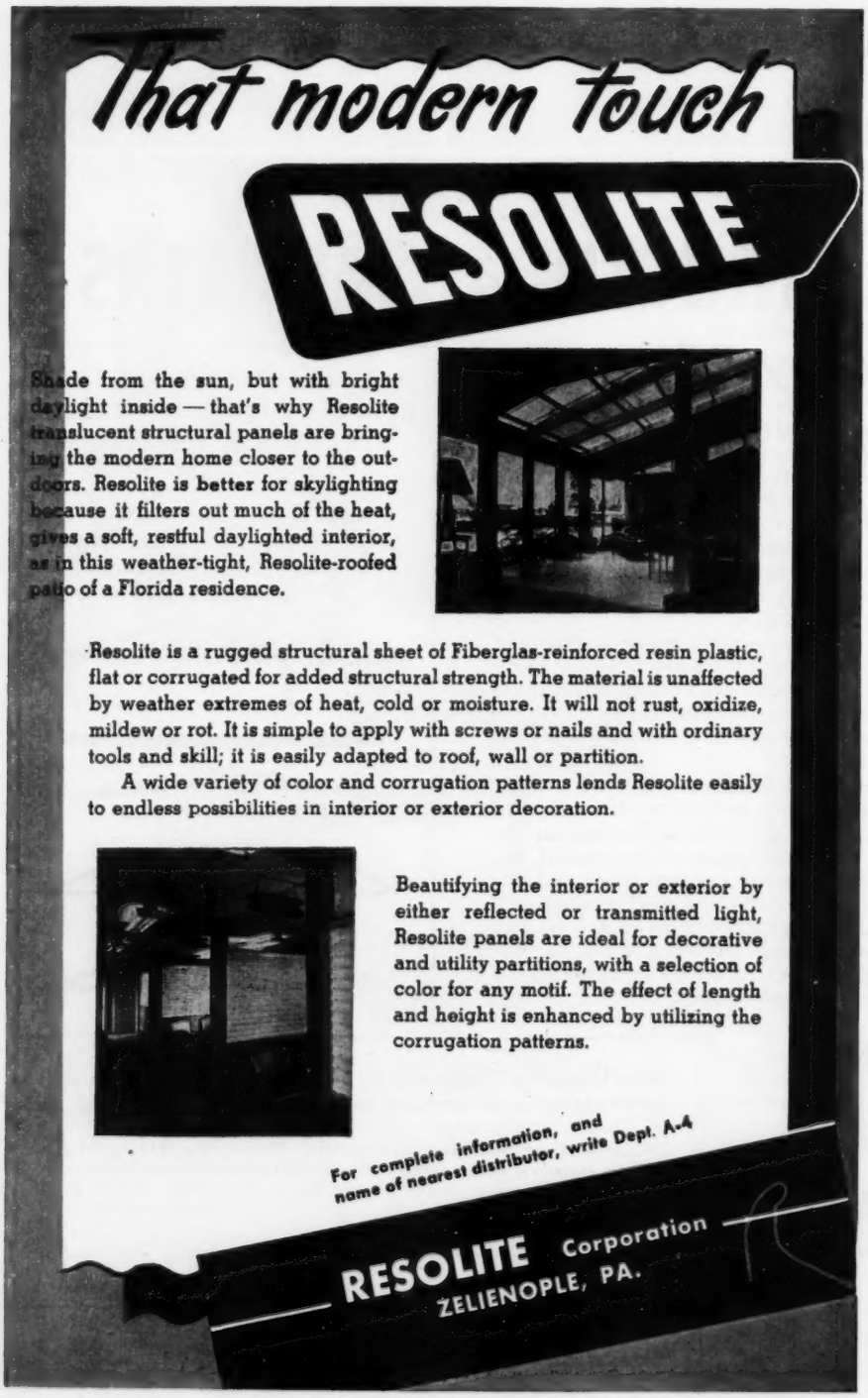
Non-hygroscopic materials transmit vapor or moisture by diffusion only through the interstices — air spaces or voids — of the material. If free water is adjacent to one surface, a certain quantity of water may be transmitted by capillarity along the fibers themselves. However, this is dependent upon many factors and will not be considered in this discussion, as we are mainly interested in the discussion of water vapor.

The material consisting of non-hygroscopic fibers with each of the individual air cells completely sealed from one another will obviously transmit no moisture or vapor. In this case, the fibers are water-repellent and do not absorb or re-evaporate the moisture. Each of the air cells are completely sealed and therefore do not permit the diffusion of water vapor through them. However, joints in such a material must be sealed adequately in order to avoid condensation of moisture at these points.

The absorption of moisture within certain types of insulating materials is not detrimental as long as it does not affect its physical properties. In certain cases the insulation may act as a flywheel whereby no free water is present due to the fact that the material itself has the ability of retaining a certain quantity of moisture. However, if this moisture exceeds the critical absorption point of the material, then the physical properties are affected, and it may reduce its insulating as well as its structural properties.

Each of the materials, whether a hygroscopic or non-hygroscopic material, has its advantages and disadvantages. Each must be weighed carefully before a critical approach can be made as to whether one type of material is preferable to another type. For example, a non-hygroscopic material will absorb less moisture than a hygroscopic material, yet free water may be present under certain conditions for the non-hygroscopic material whereas the hygroscopic

(*Continued on page 262*)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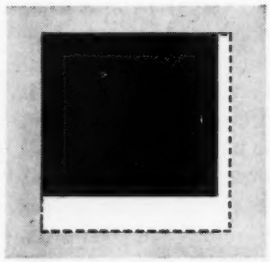

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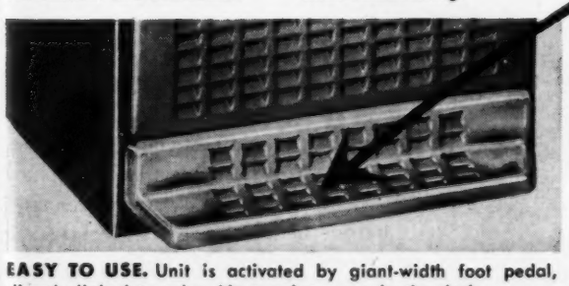

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(*Continued from page 260*)

material will retain moisture within the fibers.

On the other hand, a non-hygroscopic material will dissipate its moisture more readily because it has not been trapped with the fibers and it is merely a removal of the moisture from the air cells or voids themselves. For the hygroscopic materials and where excessive moisture occurs, the mechanics of removing this moisture become more complicated. In this case, it is necessary for the moisture to evaporate from the individual fibers to the air cells and then from the air cells to the air itse

A variable which is practically impossible to control is the vapor transmission through the different types of untreated decks. Many of the decks such as steel, concrete, and other poured decks together with precast tile have a reasonably high resistance to vapor movement as compared with insulating materials: however the resistances vary to such an extent that it is difficult to control the vapor movement through them. Wood also has a fairly high resistance to vapor transfer. However, this resistance varies with the type of wood.

Concrete itself, after it has been thoroughly cured, has a high resistance against vapor transmission. The curing of concrete continues over a long period of time and it is impossible to delay the application of the built-up roofing until the concrete has been completely cured. During the curing period, the concrete is continually giving off moisture and the roof must be protected against this moisture. On wood, steel, or precast tile the question of joints and cracks interposes a problem which is difficult to control. This can be equally applied to concrete where expansion cracks may occur during the life of the structure. In order to eliminate the possibility of any moisture movement into the insulated roof construction because of the various openings through the deck, it is necessary that a vapor seal course be applied. This is the only means of controlling the movement of vapor in order that moisture difficulties can be eliminated during the life of a roof.

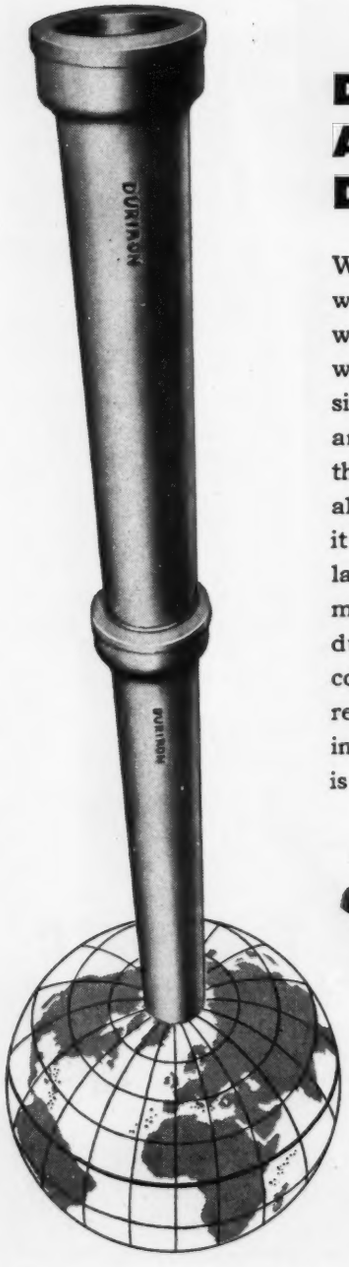
Any of the reputable roofing manufacturers have prepared satisfactory specifications for the application of a vapor seal course over any particular type of deck. As previously discussed, a single-ply felt solidly mopped to the deck with a final coating of solidly mopped bitumen provides a good vapor seal.

Whether a single-ply or two-ply vapor seal course is used is dependent upon field control and workmanship. No doubt a two-ply vapor seal course will provide a better quality vapor seal than a single-ply in so far as withstanding expansion and contraction is concerned. However, a single-ply felt solidly mopped under good field control and good workmanship conditions is preferable to a two-ply vapor seal course which is poorly applied and not solidly mopped. The main emphasis is that a solid mopping of the bitumen is obtained to provide a continuous overall seal.

Where it is definite that the inside conditions are to be maintained at very low relative humidities and the outside temperatures do not approach a point low enough to cause a vapor pressure drop from the warm side to the cold side, no vapor seal course is required.

(*Continued on page 264*)

DOWN-TO-EARTH solution for corrosive waste disposal



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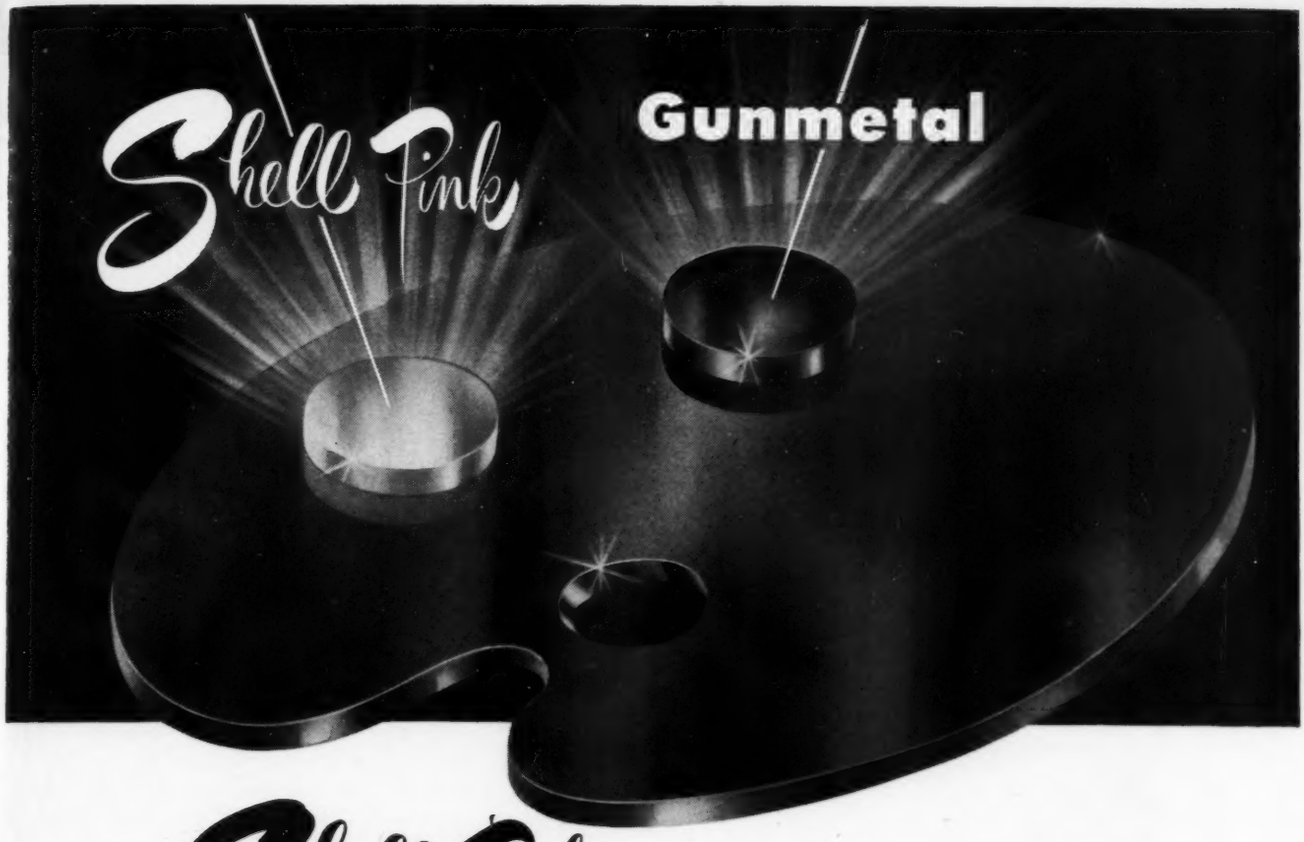

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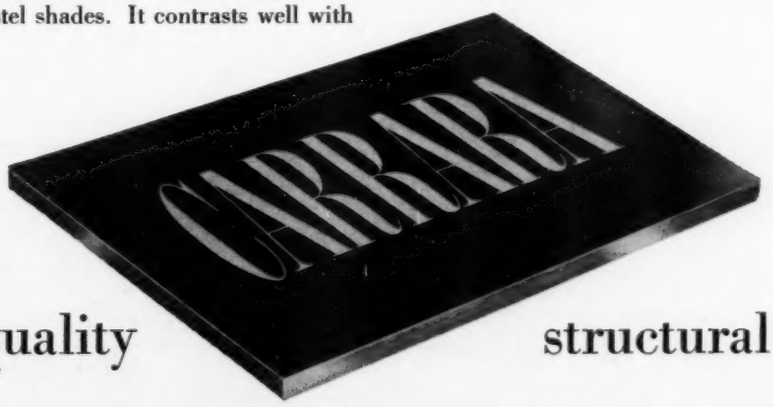
Additional facts on Carrara are contained in Sweet's Catalog.



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WATER VAPOR

(*Continued from page 262*)

However, realistically, such conditions cannot always be depended upon. The building use may change during its occupancy or severe weather conditions may occur at one time or another which provide a combination of conditions for the hazardous movement of water vapor even though the interior of a structure may be assumed to be dry at all times. There is also the possibility of higher humidities which could not be foreseen at the time the building was designed. A vapor seal course has as its principal purpose the control of any moisture migrating to a completed roof.

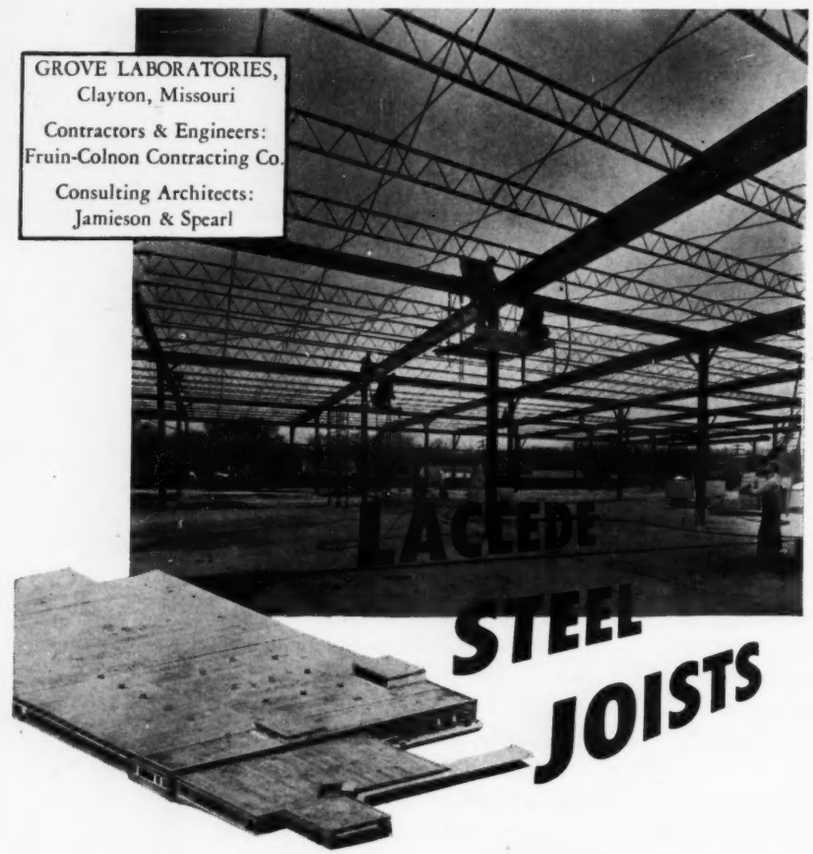
There are certain exceptions such as any poured gypsum, concrete or similar decks in which it is mandatory that a vapor seal course be applied irrespective of the inside and outside conditions. The reason is that during the curing process, a protection is supplied against the migration of moisture into the insulated roof.

Many of the common roof decks in use today have very poor insulating qualities. These require the addition of insulation both to reduce the heat loss during the cold winter months and to provide greater comfort during the summer months against the heat from solar radiation. For uninsulated decks, there is a continuous movement of moisture under certain conditions which causes condensation of moisture immediately below the surface of the roofing. Upon increase in outside air temperature, this moisture evaporates into a vapor and is released through the cracks of the wood deck or those which occur in steel decks to the air below. Thus, there are fewer blisters on these types of decks than upon decks which have a high resistance to vapor. If concrete decks or poured gypsum are not properly primed before applying a roofing directly upon them, there is a possibility of blistering. These blisters occur or are generated within the small spaces between the plies of roofing felt or near the top of the deck surface where positive adhesion does not exist. Where small air spaces occur between the deck and the roofing, vapor and air are present, and upon an increase in outside air temperature, an increase in air and vapor pressure which cannot escape through the dense concrete or gypsum causes blistering of the roofing. The reason is that if the deck is impervious to the accelerated pressure increases which occur when the roofing is exposed to the intense heat of the sun, the increase in pressure will cause blistering of the roof.

If there were some means by which this pressure could be released at a rate fast enough to prevent these blisters, no pressures or volume changes could take place. In most instances, these pressure increases are relatively rapid so that the increased vapor or air volume cannot be dissipated within the time limit necessary to avoid blistering.

The use of insulation on roof decks reduces the amount of heat flow through the roof and consequently there is a greater temperature difference between the inside air and the inside surface of the roofing. Because of this difference, the vapor pressure drop, which is the motivating force for vapor, is greatly increased and consequently the possibility of vapor entering into the roof deck is increased. As insulation contains

(*Continued on page 266*)



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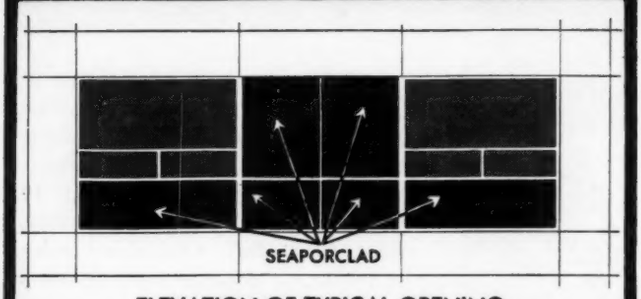
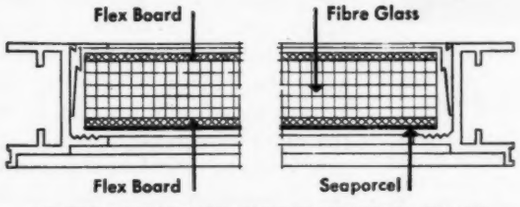


ELEVATION OF TYPICAL OPENING



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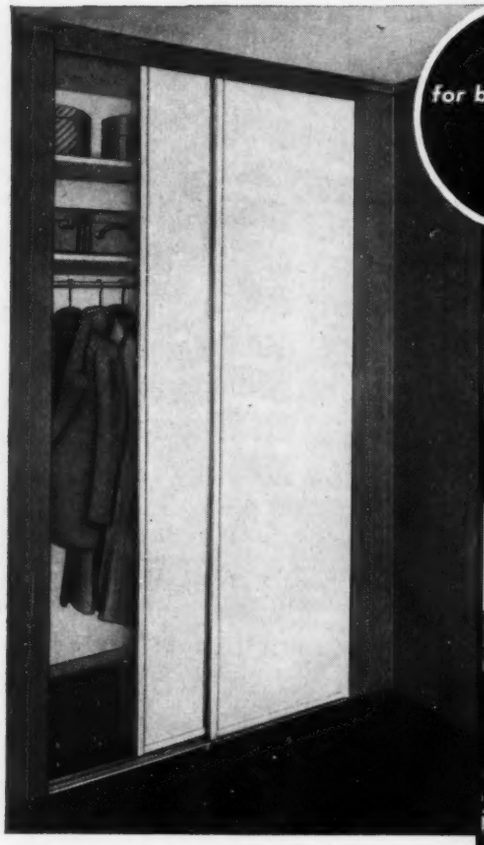

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A Top track is easily mounted on ceiling with screws.

Aluminum threshold is screwed to floor. **B**

C Doors are simply placed in upper track, then engaged in threshold . . . as easily removed to allow storage of large articles.

Glide-All Sliding Doors are a product of

WOODALL INDUSTRIES INC. DETROIT 34, MICHIGAN

WATER VAPOR

(*Continued from page 264*)

approximately 60 to 75 per cent air, it has the ability to provide a storage for excess moisture if it is permitted to enter. Based upon the same identical conditions, an insulated roof causes a delaying action in the appearance of moisture because of this storage capacity as compared with a non-insulated roof.

For example, assume that a roof having no insulation is exposed for some time to adverse moisture conditions which has resulted in the formation of frost directly below the roof. Under the same conditions, the insulated roof having no vapor barrier will require a slightly longer time due to its resistance to vapor to cause an equal amount of moisture to be condensed on the underside of the roofing felt. Upon a rise in outside air temperature or due to exposure to solar radiation, when this frost melts, immediate dripping will occur for the uninsulated roof whereas either no dripping will occur depending upon the amount of water which has been accumulated or a considerable amount of time will elapse before this dripping occurs for the insulated roof.

Insulation does not cause moisture accumulation within a roof deck any more than if the roof had not been insulated. Although insulation may cause a greater vapor pressure gradient through the roof because of its insulating qualities, other factors must be considered such as its resistance to vapor transmission as compared with air itself. Its resistance, however, is not great enough to reduce the probability of any moisture difficulties and it is therefore necessary where such conditions exist which promote the movement of vapor that a vapor seal course be installed to control the vapor movement.

It would be ridiculous to condemn the use of insulation where the installation has been made under improperly designed conditions. Air and vapor are elements which surround us at all times and have certain physical properties which are well known. Likewise, insulation has certain physical properties which when properly used are extremely important and beneficial. The proper use of the fundamental information together with its correct application under certain conditions of temperature and humidity will eliminate and control the moisture problems within built-up roofs.

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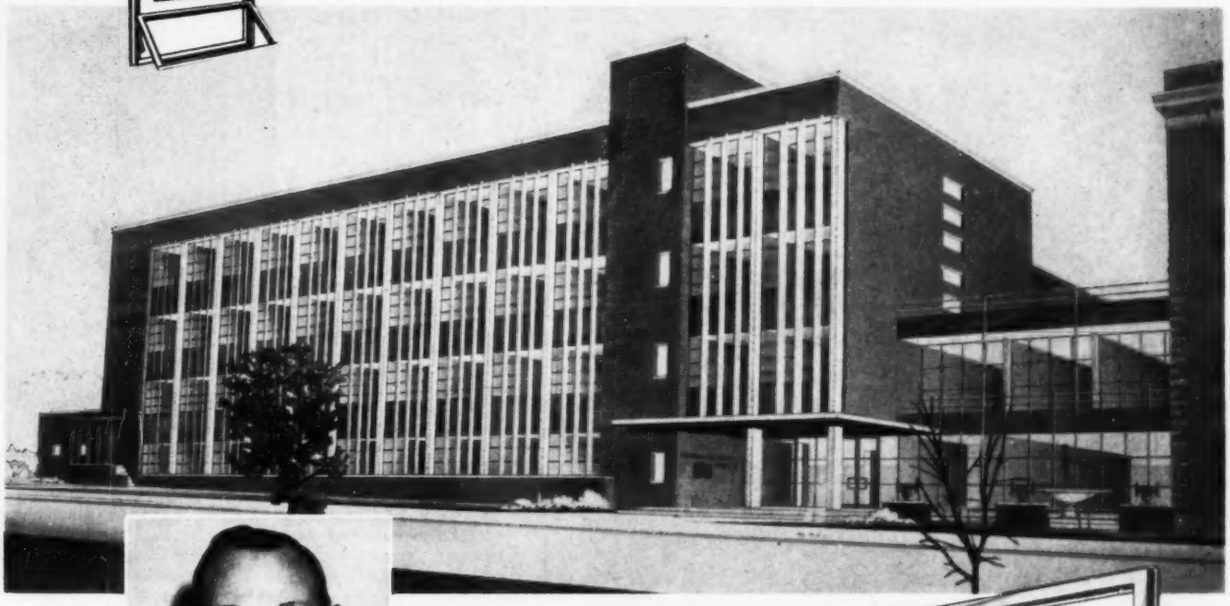

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Mr. Morgan has this to say of the Ludman Auto-Lok Windows which he has specified for a number of his projects:

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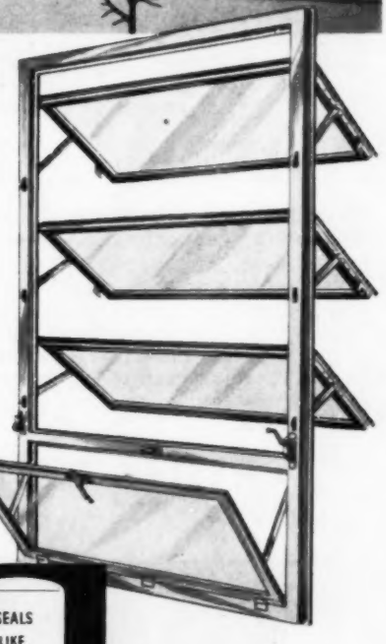

Consult Sweets File (16a, 16c, 16d) for complete specifications of all Ludman windows.

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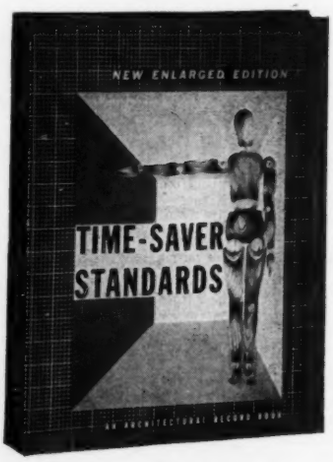

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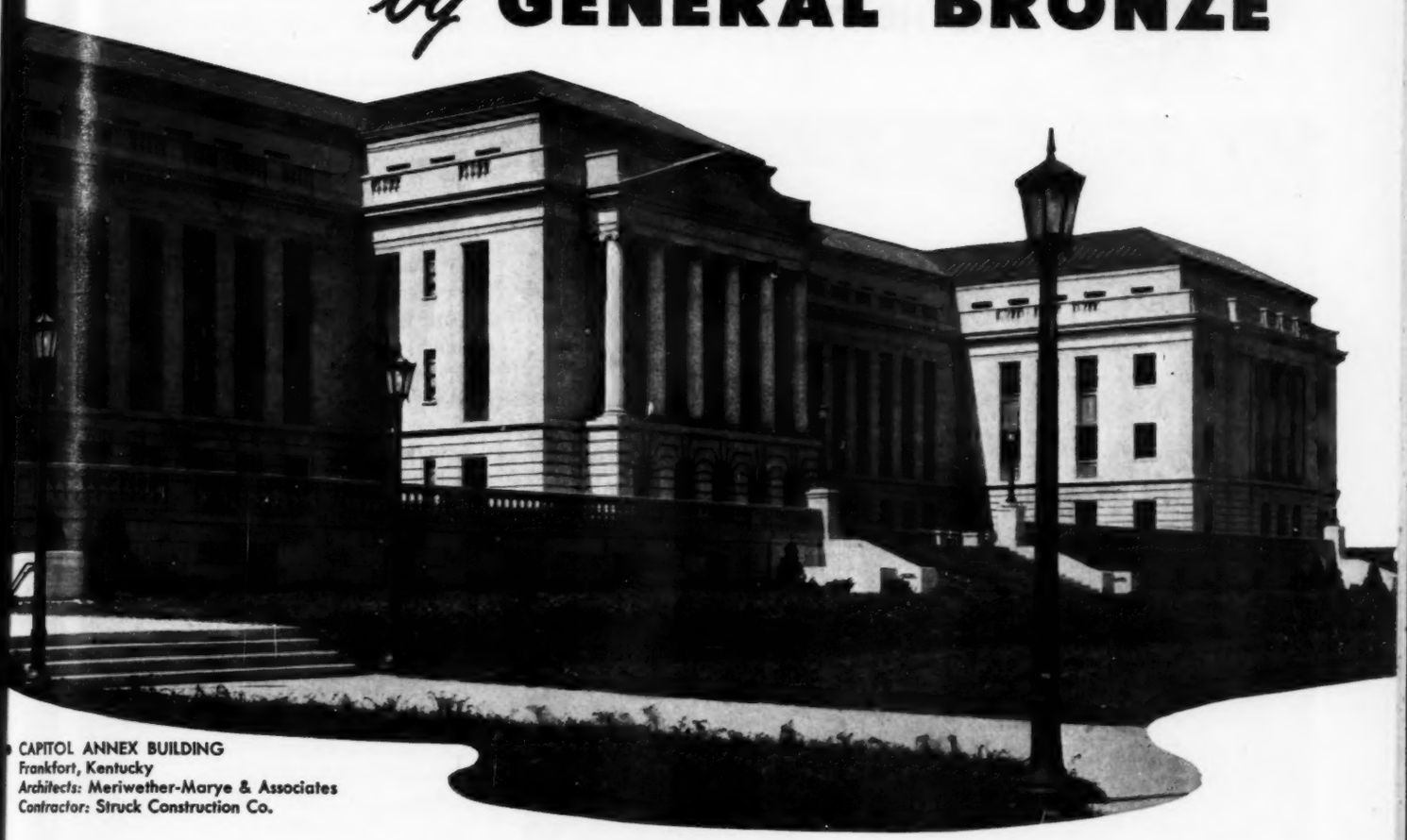

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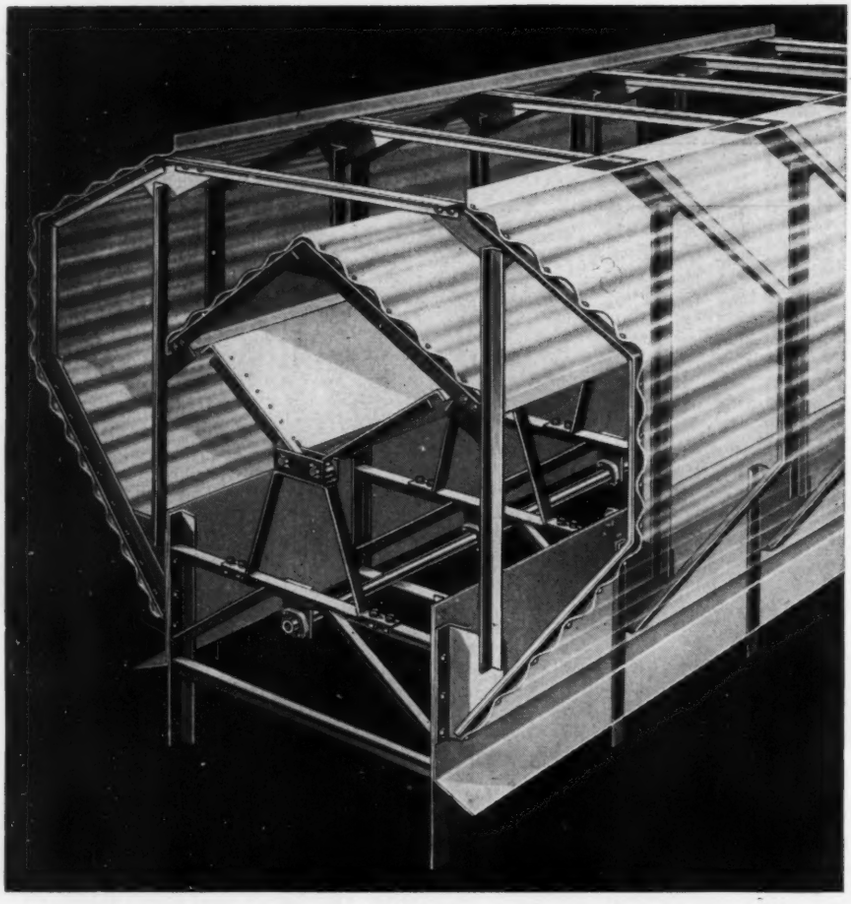

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 38*)

Senator McCarthy spoke with conviction, however, in defending the record of the Housing and Home Finance Agency research division. He knew his facts from 30,000 miles of travel in 1948 as vice chairman of a joint committee on housing. But few Senators, if indeed any others, had his knowledge of what the research division has done; and the vote obviously fell to the argument of Senator Ferguson that this was a bureaucratic activity where the economy knife could prune easily.

$125,000 for the Funeral

The Senate finally voted $125,000 for liquidating the research division which is headed by Joseph Orendorff, and it was expected that whatever pittance Congress finally decided to give the effort would have to be spent largely on publication of pending reports. The House had cut the division off without a penny.

Strangely, the Senate argument centered almost entirely around the work of the division on uniform building codes, ignoring completely its dissemination of research for other purposes.

Senator McCarthy argued that the home builders and other private industry groups supported and were anxious to retain the research effort. He told the Senators they would be saving pennies, whereas the elimination of research would eventually cost home buyers millions of dollars.

But Senator Ferguson answered that Congress had already given this operation millions of dollars and plenty of time without tangible results in savings. An example of his reasoning: "The agency had seven years in which to try to develop a model for all the various building codes. If they have not been able to perfect such codes and draw them up in seven years, I do not know why we should grant any more time or increase the size of the bureaucracy."

"So-Called Research" Decried

Senator Capehart interjected a telling argument when he said neither home builders, homeowners nor members of any other group had said anything to him about the issue. He was among others who displayed a complete lack of

(*Continued on page 272*)

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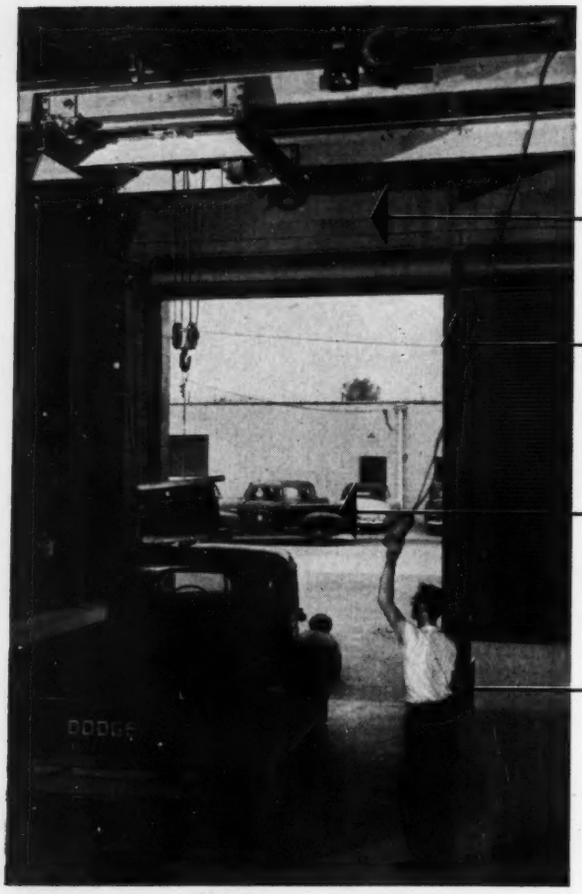
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THE RECORD REPORTS

WASHINGTON

(*Continued from page 270*)

understanding of the research work. As chairman of the Banking Committee, which writes all housing legislation, he said:

"The purpose was primarily to standardize codes. Also I believe the agency was supposed to do some research work on housing. That was six or seven years ago. It might well be that the work in that field is completed, so far as codification is concerned. Frankly I do not believe that it is necessary to keep the program in operation in order to draw plans for houses. I do not believe that any money would be saved by following such a course. The research department might well serve a purpose in trying to bring about some standardization of codes. But I doubt very much if it can serve much purpose in so-called research, or in drawing plans for houses."

The Division immediately began plans to send out reduction-in-force notices to every employee.

BUILDING SHARES CUTS IN MILITARY BUDGET

Congress was to be asked for $307.2 million less than the January budget figure for Army, Navy and Air Force construction for fiscal 1954, according to Budget Bureau plans — a $6 million drop in military construction, applying to civilian components, a $1.2 million drop in the same type of Navy work and a big $300 million cut for the Air Force budget for acquisition and construction of real property.

Pentagon officials were taking the view, on construction as other aspects of the defense budget, that there was no need to ask Congress for such large sums of money as long as a sizable cash reserve was carried over into this fiscal year. The purpose was to affect the savings so they would show up in an accounting on June 30, 1954, the end of the fiscal period.

"Freeze" Effects Slight

A certain amount of order began to show last month through the confusion that earlier surrounded budget cuts. The Budget Bureau's February freeze on most building programs for the armed

(*Continued on page 274*)

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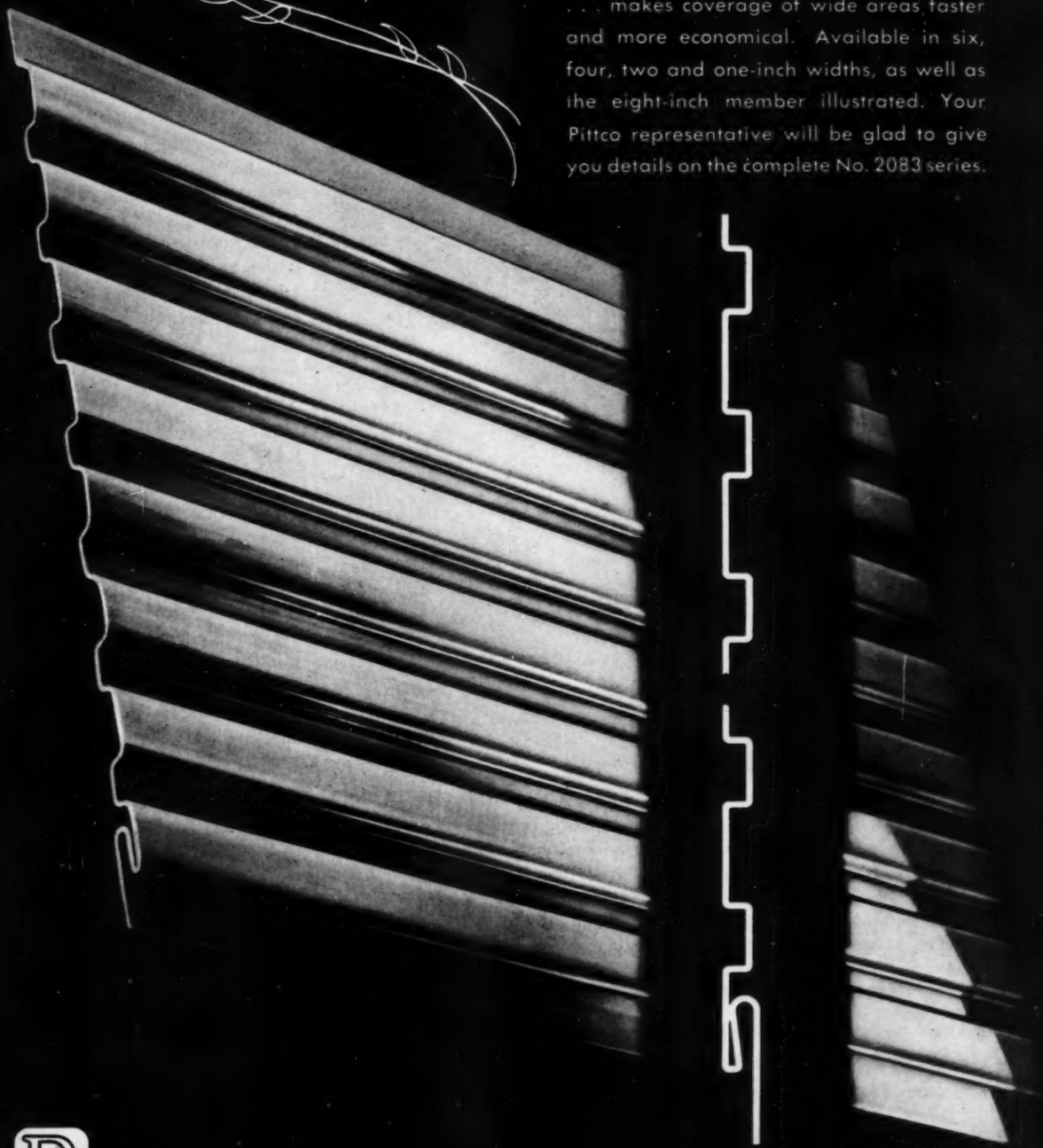

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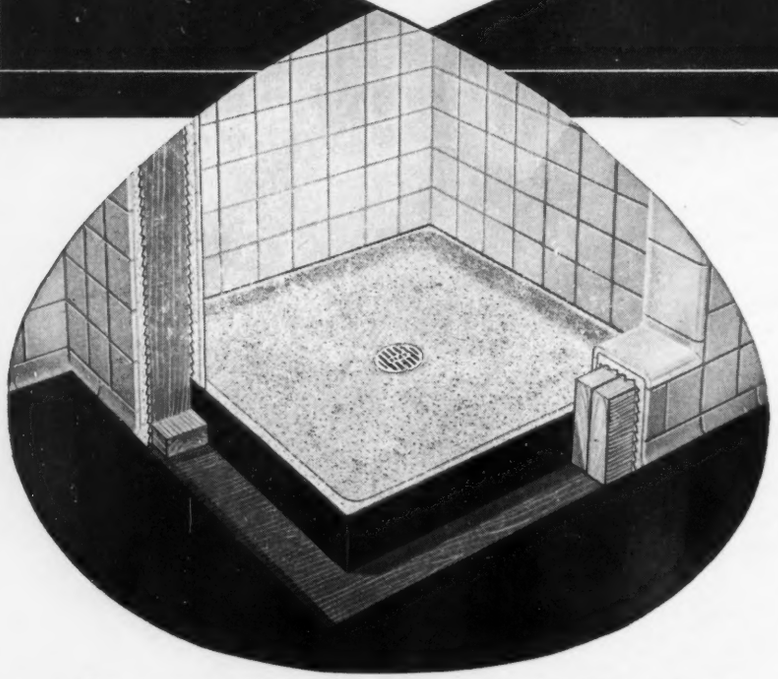

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 272*)

services had become history and procurement officials were announcing more and more contract awards. A peaking was expected this month or in August. The effects were not as bad as had been feared. Foreign projects took the brunt of the slash.

The total cutback resulting directly from the Bureau's freeze and the subsequent review was not expected to top $500 million and military construction was on its way to regaining the pre-freeze rate (about $2.6 billion) next year.

Some domestic projects were being cut out of the program, however, in line with the Administration's avowed determination to cut "fat" out of the military budget wherever it could.

HILL-BURTON PROGRAM CUT BY $25 MILLION

Funds for the Hill-Burton hospital construction program for fiscal 1954 were cut by the House of Representatives to $50 million, $10 million under the Administration request and $25 million under the figure in the Truman budget.

U. S. Public Health Service officials said the curtailment would interrupt the even flow of the program, but said they could not offer details until they had analyzed the situation.

Notes on the News

• May construction expenditures rose 10 per cent to $2.9 billion, six per cent over May 1952, according to preliminary estimates of the U. S. Labor Department's Bureau of Labor Statistics and the Building Materials Division of the U. S. Department of Commerce. Private expenditures were up eight per cent from April to almost $2 billion in May and public outlays rose 13 per cent to $933 million. For the first five months of 1953 new construction activity totaled a record $12.6 billion, nearly six per cent over 1952.

• The comprehensive planning and policy-making duties in the military construction field of the Director of Installa-

(*Continued on page 278*)

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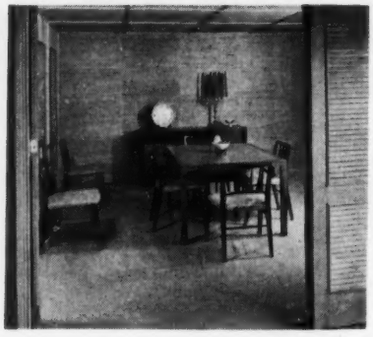

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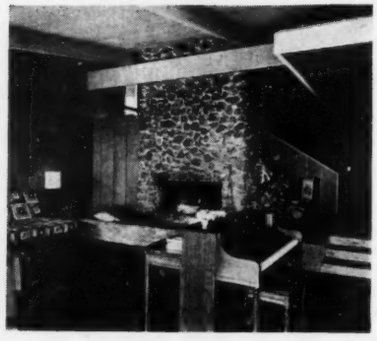

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 274*)

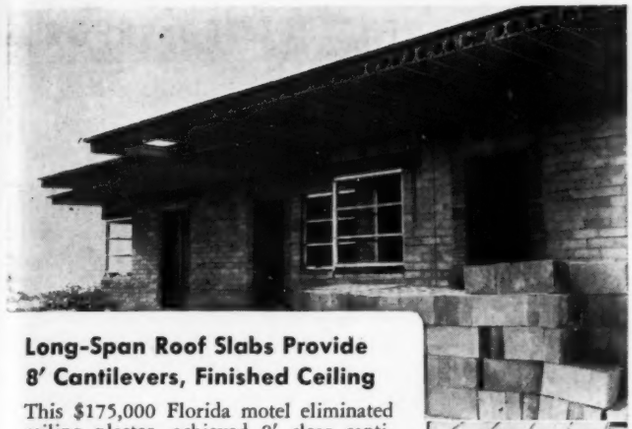
tions were to be continued when the Defense Department Reorganization Plan became effective, July 1, by a new Assistant Secretary of Defense. A Department spokesman said last month that what would happen to the present staff of 25 headed by Frank R. Creedon was still "vague" but that their functions were programmed to continue.

• Mrs. Oveta Culp Hobby, Secretary of the new Department of Health, Education and Welfare, has given evidence, in her first public statement on the school construction field, of concern over the school building shortage. Addressing a group of magazine editors in Washington, Mrs. Hobby cited figures from the Office of Education's nationwide school survey to point up her statement that "in spite of an exceptional rate of construction, the shortage of school buildings continues to be one of the most serious problems confronting the people of the U. S."

• The Building Research Advisory Board issued its third progress report and for the three years of its existence tallied among its major activities six correlation conferences and the publication of their proceedings; an exhaustive survey of housing research for the Housing and Home Finance Agency; and a major study for the Federal Government of conservation in building construction. BRAB is now, through its Building Research Institute, considering a periodical Building Research Digest, which would provide a key to current articles on the science of building. BRI, at its April 10 meeting in Washington, named a committee to formulate recommendations for this program.

• The Engineering Manpower Commission of the Engineers Joint Council has urged passage of a bill (H. R. 3893 and S. 1551) to amend the Armed Forces Act of 1952 by providing for "the orderly and selective recall to active duty in the military services of members of the military reserves so as to afford the most effective utilization of manpower re-

(*Continued on page 280*)



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This $175,000 Florida motel eliminated ceiling plaster, achieved 8′ clear cantilevers easily and speeded construction by using Flexicore precast slabs in 16′ to 22′ 6″ spans. Smooth underside of fire-resistant slabs formed attractive panelled ceilings. For catalog and nearest manufacturer, write The Flexicore Company, Inc., 1769 East Monument Avenue, Dayton 1, Ohio.

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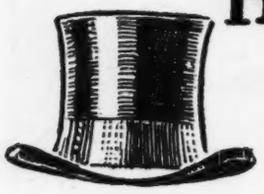
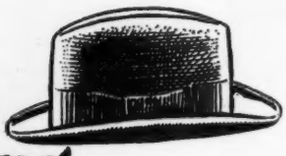


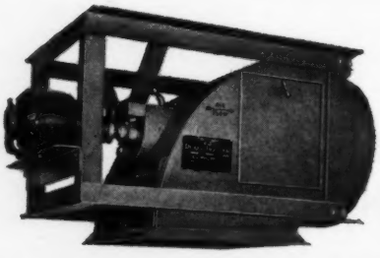
High Hats are out of date

now— it's the Homburg



High Chimneys, too, are out of date

now— it's the WING DRAFT INDUCER



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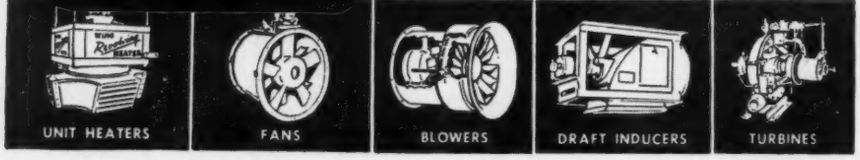

THE RECORD REPORTS

WASHINGTON

(*Continued from page 278*)

sources of the United States." Under the present law, according to Commission Chairman Dr. T. H. Chilton, "over 25 per cent of all engineers and scientists engaged in research and development programs in the country — the very people on whom we depend for our continued technological and economical superiority — could be placed in uniform tomorrow with a snap of the Pentagon's official finger."

• Selection of architect-engineer firms and a number of other pertinent points on Air Force construction contracts are described in a recently-published booklet prepared by the Office of the Assistant Secretary of Defense, Matériel, to describe procedures contained in the publication "Uniform Standards for the Employment and Payment of Architect-Engineer Services." Methods of negotiating fees for services performed by such firms are also covered in the booklet, which contains a strong defense of the Air Force system.

• Architects, engineers and others in the construction industry, including building materials and manufacturers, are pushing the release of more information on the details of recent exhaustive tests conducted by the Atomic Energy Commission in Nevada to determine the effects of atomic blast on a series of curtain wall sections. A number of industry observers, including Fred A. Pawley, research secretary of the American Institute of Architects, were invited to observe the tests; but they are of course not allowed to discuss their impressions without AEC clearance; and the clearance has been slow in coming. FCDA will eventually publish data on test results; but officials there are pointing out that lack of funds is already holding up publication of other information that has been at hand for a long time.

• Authority to approve advances for planning under the second advance planning program of the Bureau of Community Facilities of the Housing and Home Finance Agency expired in 1951, but processing of previously approved projects has gone on; and the 13th

(*Continued on page 282*)

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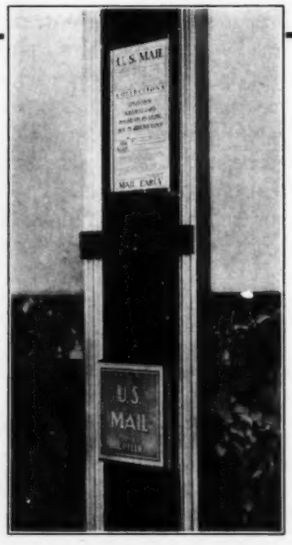

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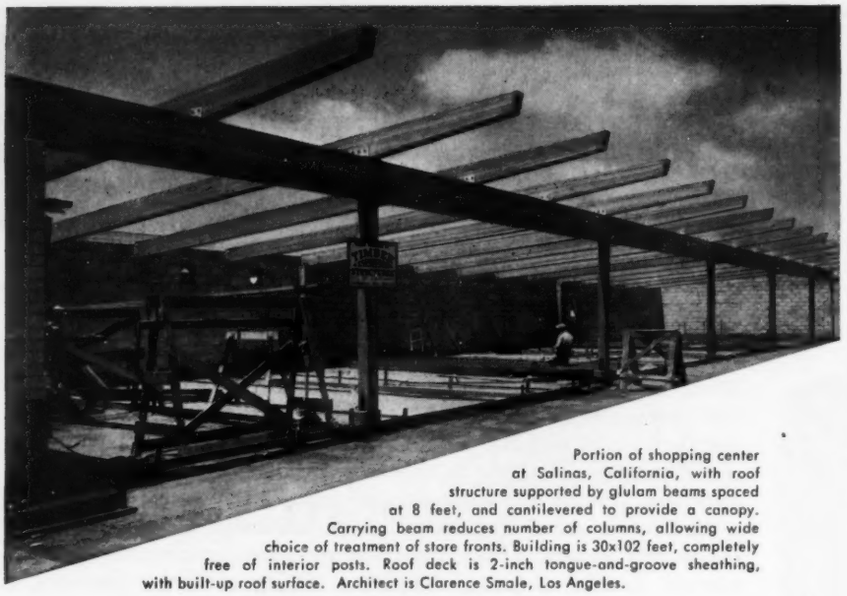

Portion of shopping center at Salinas, California, with roof structure supported by glulam beams spaced at 8 feet, and cantilevered to provide a canopy. Carrying beam reduces number of columns, allowing wide choice of treatment of store fronts. Building is 30x102 feet, completely free of interior posts. Roof deck is 2-inch tongue-and-groove sheathing, with built-up roof surface. Architect is Clarence Smale, Los Angeles.

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 280*)

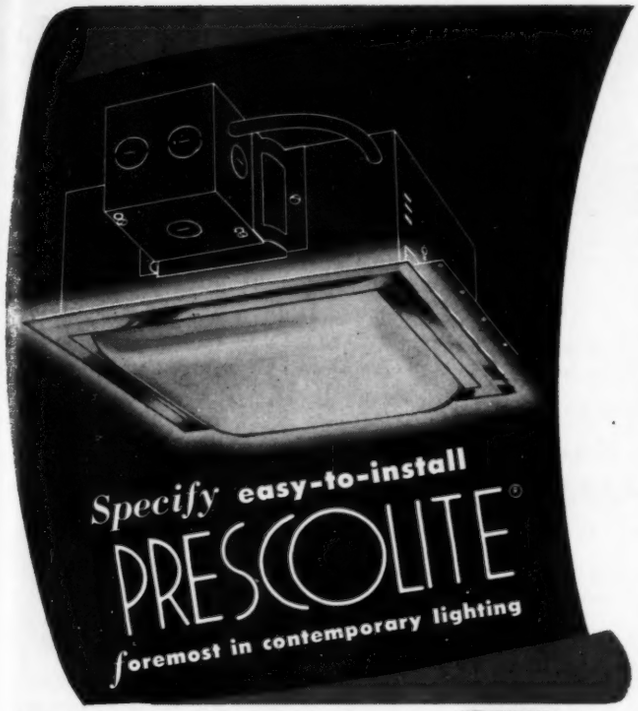
quarterly report on the program shows that through December 31, 1952 plan preparation had been completed on 948 of the 1283 projects approved — estimated construction cost of the 948 was $610 million, of which planning costs of $11.6 million had been advanced by the government. Of the 1283 approved projects, 506 were sewer facilities, 373 schools and other educational facilities and 186 water facilities; 218 were highways, bridges, hospitals and miscellaneous work. Under the program the loans to states and local communities are to be paid back directly to the Treasury without interest when construction begins.

• What's the matter with urban redevelopment? The United States Chamber of Commerce devotes a recent issue of its newsletter "Construction Markets" to answering this question posed by itself. "Too much government" is the main burden of the answer: "The way to get widespread redevelopment is to remedy the conditions that discourage it, rather than to seek an answer through more and more subsidy. . . . While endorsing the power of eminent domain to reassemble slum sites, the Chamber's emphasis has been not on subsidy but on enforcement of health and safety standards, comprehensive city planning, sound public works programs, and building code improvement, as means for creating a better environment."

• Fifty-four per cent of the defense houses programmed for private construction in critical defense housing areas had been put under construction and 39 per cent of those programmed had been completed as of May 20, the Housing and Home Finance Agency reported.

• John L. Haynes, who has been director of the Building Materials Division of the National Production Authority, has been appointed managing director of the Producers' Council. Mr. Haynes succeeds Charles M. Mortensen, who resigned May 1 to become associate manager of the Trade Association Department of the Chamber of Commerce of the United States.

(*More news on page 284*)



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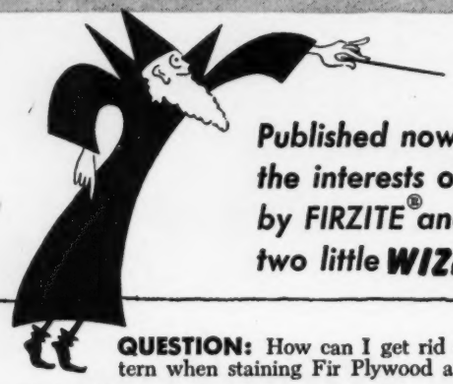
The Architect's Question Box



Published now and then in the interests of wood finishing, by FIRZITE® and SATINLAC,® those two little WIZARDS WITH WOOD.

QUESTION: How can I get rid of the ugly wild grain pattern when staining Fir Plywood and some other soft woods?

ANSWER: The cause of this wild grain is the way stains "take" so differently on the soft spring and hard summer growths. You can kill this wild grain by applying a coat of FIRZITE as a pre-sealer. FIRZITE penetrates deeply and in effect brings the soft growth to about the same density as the hard growth, thus "taming" the wild grain. Then, stain and finish as desired—thus achieving a smooth, rich finish.

QUESTION: What's the best way to bring out the beautiful *natural* finish on wood panelling and woodwork?

ANSWER: Whether the panelling is soft wood or hardwood, the most effective way to bring out its *natural* beauty of grain and color, is to apply two coats of SATINLAC about four hours apart; steel wool, dust off and finish with one coat of paste wax.

QUESTION: Is there any one "best" method to obtain a blond or pickled finish?

ANSWER: For such purposes, both on hard wood or soft, plywood or solid, WHITE FIRZITE produces a clear "woodsy" effect without a "painty" look. Complete the finish with SATINLAC. It's water clear—*so* necessary with these effects.

QUESTION: I recently had a job using Fir Plywood that got the usual coats of undercoat and enamel; and still we couldn't lose the grain raise. Any suggestions?

ANSWER: A first coat of FIRZITE will minimize or virtually eliminate face checking and grain raising on painted or enamelled jobs.

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THE RECORD REPORTS

(*Continued from page 282*)

ON THE CALENDAR

July 6–17: Advanced Strength of Materials; a special summer program — Massachusetts Institute of Technology, Cambridge 39, Mass.

July 11–Aug. 22: Fourth Annual Design Workshop for Students of Architecture — Instituto Tecnologicode Monterrey, Mexico.

July 11–Aug. 24: Creative Art Workshop and conducted field tour for the study of art treasures of France and Italy, under the direction of André Racz. Information from Margit Pinter, % British American Tours, 542 Fifth Ave., New York 36, N. Y.

July 27–Aug. 14: School Plant Planning Workshop conducted by Department of Architecture and Architectural Engineering — University of Colorado, Boulder, Colo.

Aug. 11–Sept. 27: Furniture by Thonet, presented on the occasion of the 100th anniversary of Thonet Industries, Inc., in the U.S.A. — Museum of Modern Art, 11 W. 53rd St., New York City.

Aug. 24–Sept. 4: Special Summer Program in Noise Reduction — Massachusetts Institute of Technology, Cambridge 39, Mass.

Aug. 24–Sept. 4: 15th Annual Seminar on City and Regional Planning — Massachusetts Institute of Technology, Cambridge 39, Mass.

Aug. 30–Sept. 9: Leipzig Fair 1953 "for capital and consumer goods" — Technical Fair Grounds, Leipzig.

Aug. 31–Sept. 3: Annual Convention, American Hospital Association — San Francisco.

Sept. 14–18: National Technical Conference, Illuminating Engineering Society — Hotel Commodore, New York City.

Sept. 17–19: Gulf States Regional Conference; theme, "Serving the People of the South through Architectural Progress" — Biloxi, Miss.

Sept. 17–27: National Furniture and Homefurnishings Show — Grand Central Palace, New York City.

Sept. 18–19: Meeting of Great Lakes Regional Council — Statler Hotel, Detroit, Mich.

Sept. 20–27: National Home Week, sponsored by National Association of Home Builders.

(*Continued on page 286*)

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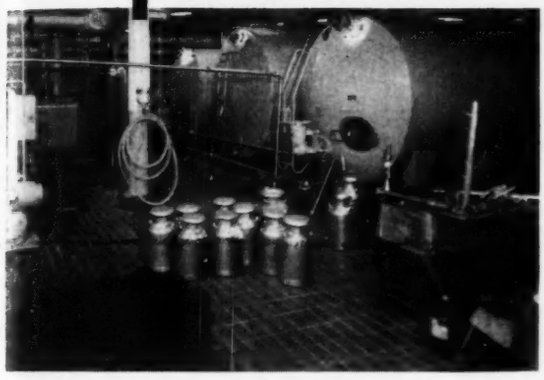

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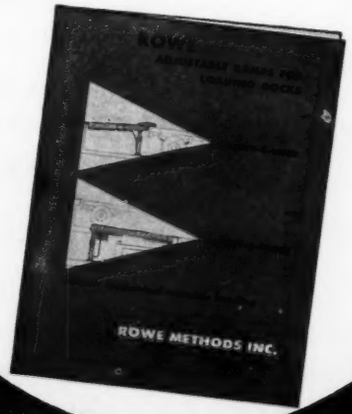

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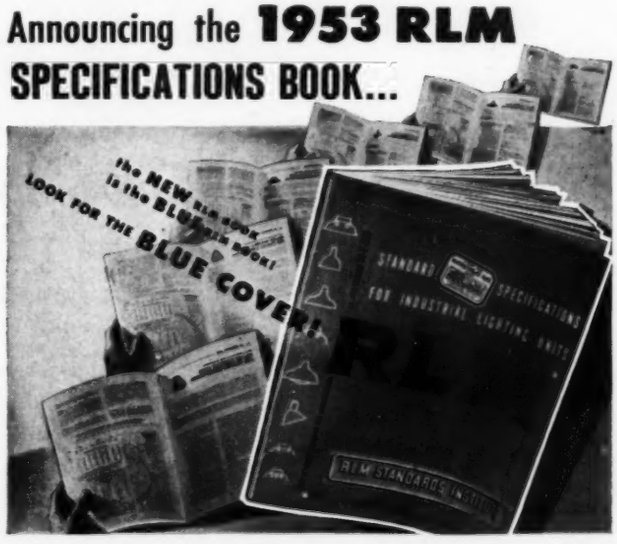

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THE RECORD REPORTS

(*Continued from page 284*)

Sept. 21–27: 3rd U.I.A. Congress — Lisbon, Portugal. Details obtainable from Union Internationale des Architectes, 15 Quai Malaquais, Paris.

Sept. 23–Nov. 29: Good Design. Selections from the 1953 exhibition in Chicago — Museum of Modern Art, 11 W. 53rd St., New York City.

Sept. 29–Oct. 2: National Electrical Industries Show — 69th Regiment Armory, New York City.

Sept. 30–Nov. 22: State Department Architecture. Models, drawings and photographs of approximately eight buildings in Europe by architects commissioned by the U. S. Government — Museum of Modern Art, 11 W. 53rd St., New York City.

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OFFICE NOTES

Offices Opened

• Roger F. Buzzard, Architect, has announced the opening of his offices at 532 W. Park Ave., Barberton, Ohio.

• Orrie J. Holmen, architect, has opened an office at 4380 Wadsworth Ave., Wheatridge, Col.

• Howard A. Korne, Architect, has announced the opening of an office for the practice of architecture at 8½ S. Ludlow, Dayton 2, Ohio.

• Karl Krauss Jr., Architect, announces the opening of his office on Neah-ta-Wanta Road at Bowers Harbor, Mich. Mailing address: Route 1, Box 88B, Traverse City, Mich.

• Don R. Livergood, Architect, has opened a new office at 40 Norwood Drive, Decatur, Ill.

• Robert E. Wachter, Architect, announces the opening of an office for the general practice of architecture, 1253 Edgewood St. N.E., Warren, Ohio.

New Firms, Firm Changes

• G. Robert Fox and Francis L. Ruzsa have announced the formation of a partnership for the practice of architecture. The firm will be known as Fox and Ruzsa, Architects, and will have offices at 3608 Euclid Ave., Cleveland, Ohio.

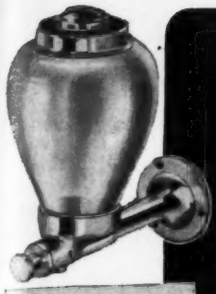
• Helge Westerman, A.I.A., has been made a partner in the firm of Neergaard, Agnew & Craig, hospital consultants of 41 E. 42nd St., New York 17, N. Y.

• Milton E. Nelson, A.I.A., has been admitted to partnership in the firm of Charles A. Maguire and Associates, Engineers, of Providence, R. I., and Boston, Mass.

• Dr. Edwin Frederic Pike has been appointed director of the chemical engineering department of Giffels & Vallet, Inc., L. Rossetti, associated engineers and architects of Detroit.

• Arthur O. Reddemann, A.I.A., and Kenneth I. C. Knudson, Architect, have announced the opening of an office for

(*Continued on page 288*)



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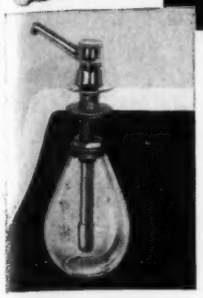

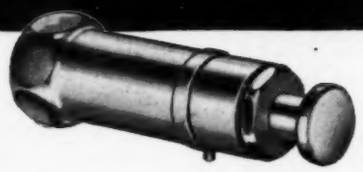

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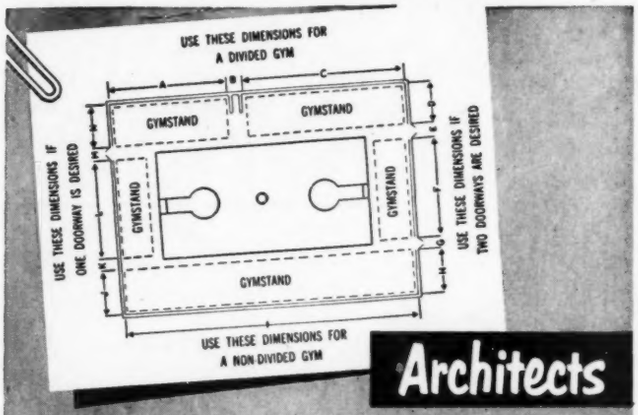

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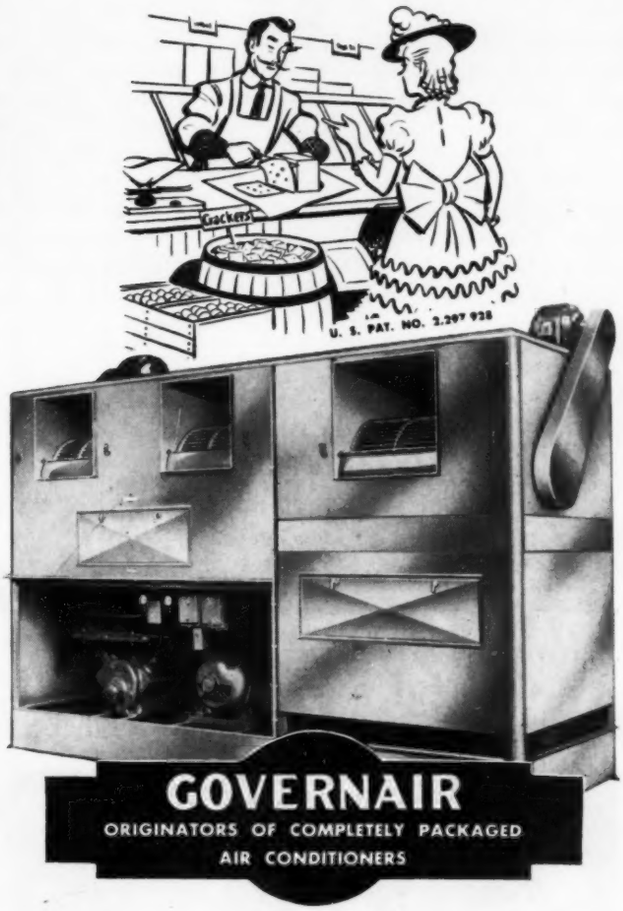

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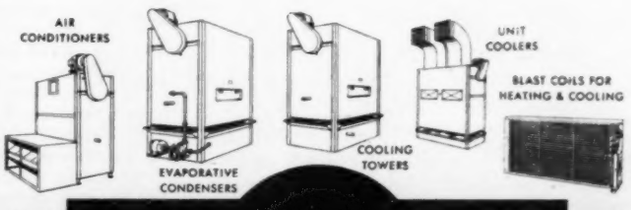

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THE RECORD REPORTS

(*Continued from page 286*)

the practice of architecture. The firm's address is Reddemann-Knudson, Architects, 3420 W. Center St., Milwaukee 10, Wis.

• A new architectural firm, Schubart and Friedman, has been formed by Howard Friedman and Henry Schubart. Offices will be at the Penthouse, 230 California St., San Francisco, Calif.

• Marvin L. Thomas, Architect, has announced the addition to the staff of Robert V. Ford, Architect, and a change of office location to 1109 Topeka Blvd., Topeka, Kan.

• John Carl Warnecke, A.I.A., of San Francisco and Oakland, has announced the addition to the staff of Lawrence Livingston Jr., a planning consultant.

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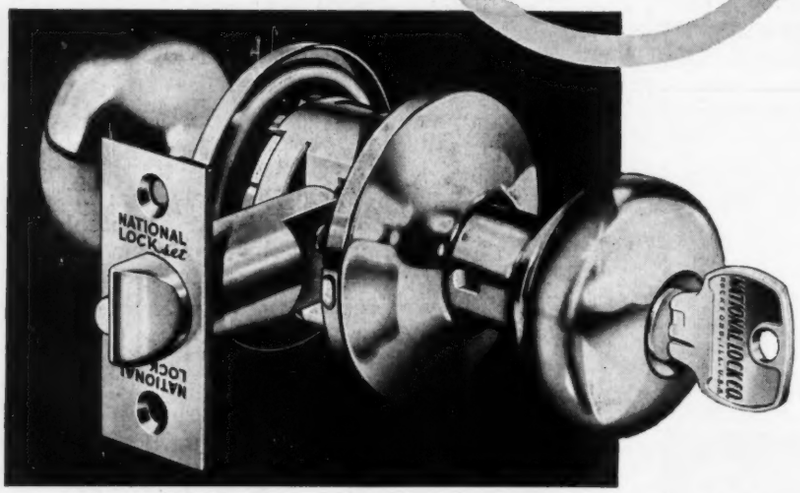

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New Addresses

The following new addresses have been announced:

William A. Arrasmith, Architect, 200 Madrid Building, 3rd and Gutheri Streets, Louisville, Ky.

Herbert G. Cole, Architect, Highland Apartments, Victoria Heights, Port Hope, Ont.

Coleman and Liebmann, Architects, 202 E. 44th St., New York 17, N. Y.

Glynn L. Harris, Architect, 1211 Polk St., Wichita Falls, Tex.

H. H. Harriss, A.I.A., 4753 S.W. 2nd Terrace, Miami 44, Fla.

Caleb Hornbostel, Architect, 112 E. 19th St., New York City.

J. M. Ingram, Architect, 303 Columbia Building, 401 W. Main St., Louisville, Ky.

Harold C. Knight, Architect, 11 Beacon St., Boston 8, Mass.

Isadore Markus, Architect, 45 Avenue Rd., Toronto 5, Ont.

Auguste Martineau, A.D.B.A., M.R.A.I.C., Architect, Masoud Building, Kingston, Ont.

Edmund J. Meles, Architect, 564 Pacific Parkway, Lansing 10, Mich.

Edla Muir, Architect, Route 3, Box 123, Ellensburg, Wash.

Leslie I. Nichols, A.I.A., 454 Forest Ave., Palo Alto, Calif.

John B. Richards, Architect, 111 E. High St., Bound Brook, N. J.

Hobart D. Wagener, A.I.A., National State Bank Building, Boulder, Colo.

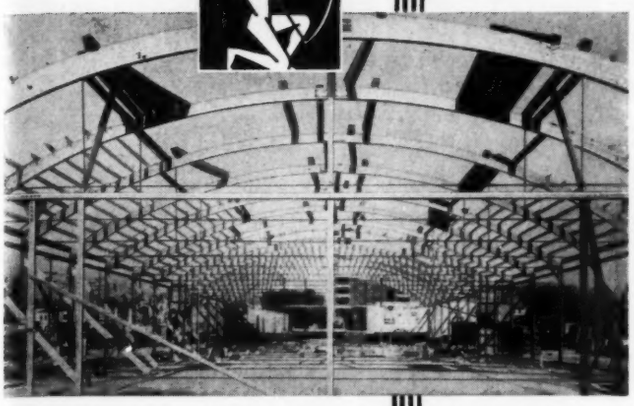
ELECTIONS APPOINTMENTS

• Harold T. Larsen has been appointed manager of technical publications for the American Society of Civil Engineers. He succeeds Sydney Wilmot, who has retired. Mr. Larsen, who has been associated with the Society's publications since 1927, has been editor of technical publications since 1930. He is an authority on population trends and has been engaged for a number of years in studies in that field for Rockland County, New York.

• William L. Healy of the General Electric Company, Philadelphia, has been elected president of the Standards

(*Continued on page 290*)

Summerbell for INDUSTRY



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 (*Continued from page 288*)

Engineers Society, an organization of active professionals in the field of standardization. Other officers are: vice president — Madhu S. Gokhale, Radio Corporation of America, Camden, N. J.; secretary — Fred M. Oberlander, R.C.A., Camden, N. J.; treasurer — Harold J. Nugent, manufacturers' representative, 3701 N. Broad St., Philadelphia.

• Dr. Elmer H. Schulz and Dr. Maurice J. Day have been promoted to the positions of director of research and assistant director for program development, respectively, at the Armour Research Foundation of the Illinois Institute of Technology. Dr. Schulz was formerly manager of the physics and electrical engineering division of the foundation and in his new post he will direct research and development activities of more than 850 scientists and engineers. Dr. Day, who joined the foundation in 1952 as manager of its materials and process division, will coordinate the program development activities of the foundation's eight departments.

• Walker Hancock, sculptor and educator, has received the *Medal of Achievement* of the Philadelphia Art Alliance. Mr. Hancock, who designed the Eisenhower Inaugural Medal, the Army and Navy Air Medal, the United States Marine Corps Expeditionary Medal and the United States Air Mail Fliers Medal of Honor, was chosen for the annual award for his "many years of outstanding work in sculpture."

• Robert S. Hutchins, F.A.I.A., of the New York architectural firm of Moore and Hutchins, has been appointed to a three-year term as architect member of the New York City Art Commission. Mr. Hutchins succeeds Alfred Easton Poor, whose term had expired.

• William B. F. Hall of Fort Wayne, Ind., has been elected president of the Prefabricated Home Manufacturers' Institute. Mr. Hall, who is president of General Industries Inc., succeeds John C. Taylor.

• Col. Ray Adams has been named to be Washington, D. C., District Engineer effective about July 1, according to an announcement from Maj.-Gen. Samuel D. Sturgis Jr., chief of Army Engineers. Colonel Adams has served most recently as vice commander of the Engineer Aviation Force, Walters Air Force Base, Mineral Wells, Tex. Col. Alan McCutchen, present Washington, D. C., District Engineer, will be assigned to Army Forces Far East.

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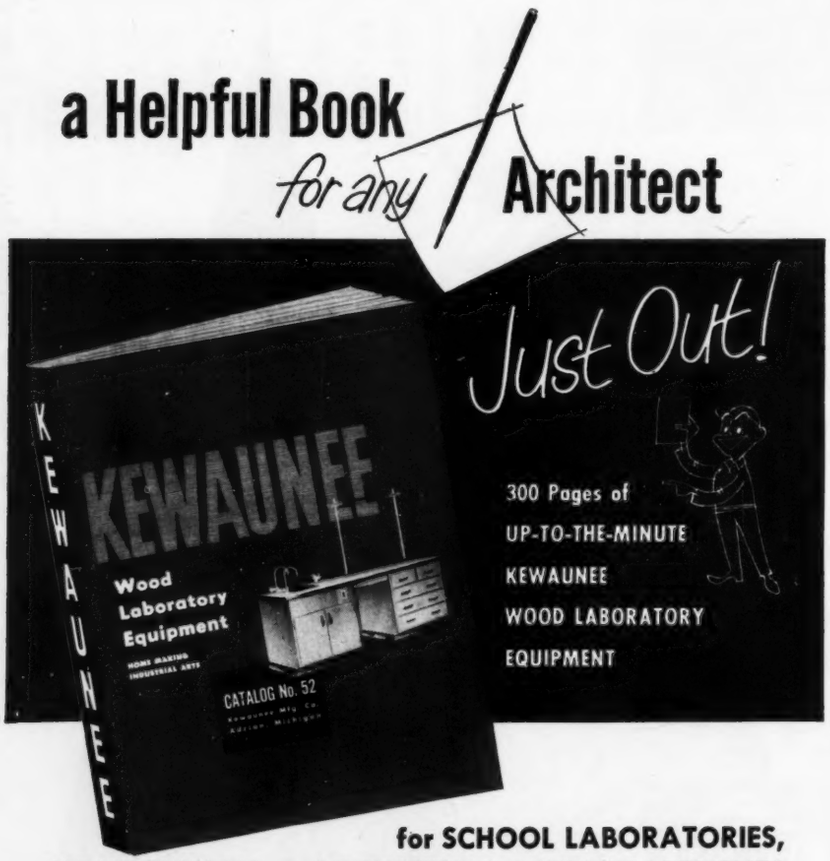

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OBITUARY

NATHANIEL COURTLANDT CURTIS, 72, head of the School of Architecture at Alabama Polytechnic Institute from 1907 to 1912 and head of the School of Architecture at Tulane from 1912 to 1917, died April 15 in New Orleans after

(*Continued on page 292*)

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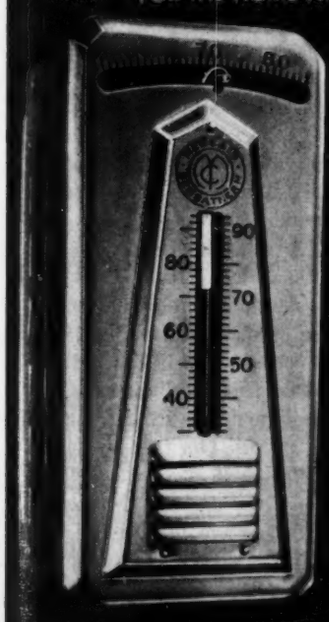

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(*Continued from page 290*)

a heart attack. Mr. Curtis, a Fellow of the American Institute of Architects and a former president of the Louisiana Chapter, had been associated with the New Orleans architectural firm of Goldstein, Parham and Labouisse since 1920. From 1921 to 1937 he was a lecturer in Tulane's School of Architecture and from 1937 until his retirement in 1945 as professor of architecture emeritus an associate professor.

CHARLES BUTLER, 82, New York architect especially known for his design of hospitals, died June 4 in his home at the Surrey Hotel in New York. He was a past president of the New York Chapter of the American Institute of Architects and a member of the Board of Design for the 1939 New York World's Fair. From 1899 to 1911, Mr. Butler was a partner of Cary S. Rodman of New York. On Mr. Rodman's death he became associated with several other architects under the firm name of Robert D. Kohn, Charles Butler and Associates. With Mr. Kohn and Clarence S. Stein, he designed Temple Emanu-El in New York. Among his other buildings were the Children's Hospital of Johns Hopkins Hospital in Baltimore (1909), the Department of the Interior Building in Washington (1915) and a permanent military hospital for the French Ministry of War at Issy-les-Moulineaux, for which he was later made a Chevalier of the Legion of Honor.

THEODORE C. TUCK, a partner in the New York consulting engineering firm of Tuck and Eipel, died May 21 at the age of 74. Mr. Tuck, a graduate of the Massachusetts Institute of Technology and a member of the American Society of Civil Engineers, had been with the present firm since 1939. From 1905 to 1939 he was with Post and McCord, also of New York. Among the buildings on which he was associated with design were the Morehead Planetarium, Chapel Hill, N. C.; the Wharton School of Business, University of Pennsylvania; University of Virginia Medical Center; an office building and garage for Bethlehem Steel Company; and many housing projects.

THEODORE KAUTZKY, architect, author and artist, died May 18 at Yonkers, N. Y., General Hospital of complications following a major operation. He was 56 years old. Mr. Kautzky was perhaps best known to architects for his pencil renderings published in *Pencil Points* (now *Progressive Architecture*), but in later years he became interested in watercolor and was at his death probably more widely known for his watercolors than for his drawings. But his work for *Pencil Points* had led to the publication of two books of his pencil drawings — *Pencil Broadsides*, in 1940, and *Pencil Pictures*, in 1947; and his work in that field has had a wide influence on pencil renderers in and out of architectural offices. His two books on watercolor, *Ways with Watercolor* (1949) and *Painting Trees and Landscapes in Watercolor* (1952), have also been highly successful. Mr. Kautzky had won innumerable art prizes, among them the American Water Color Society Medal of Honor (1941), the Allied Artists of America Gold Medal (1949), the National Academy of Design Obrig Prize (1952) and the Salamagundi Club Auction Prize and Watercolor Prize (1952).

(*Continued on page 296*)

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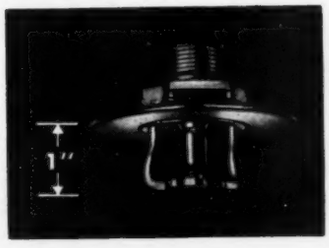

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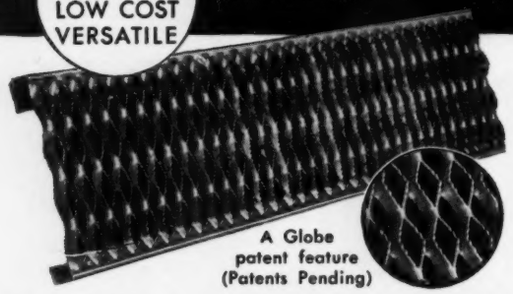

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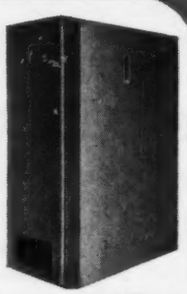

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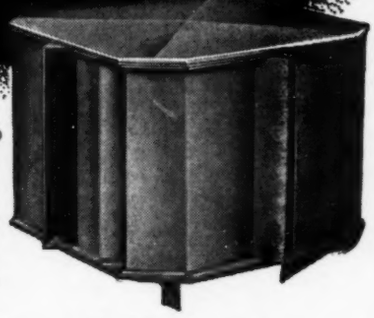

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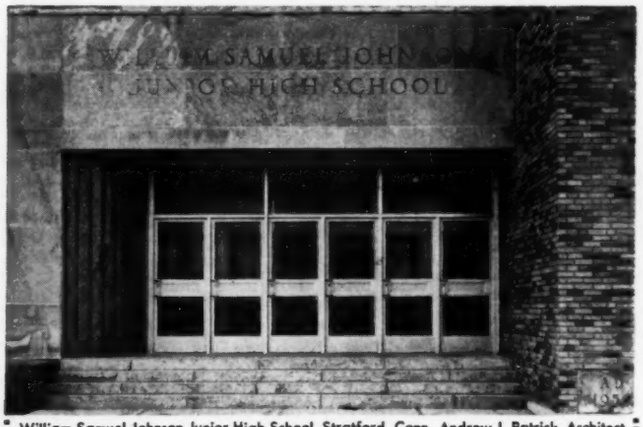

William Samuel Johnson Junior High School, Stratford, Conn. Andrew J. Patrick, Architect
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 (*Continued from page 292*)

This year he had received an Award of Distinctive Merit in the New York Art Directors' Club Exhibition of Advertising and Editorial Art.

SAMUEL M. MORINO of Providence, R. I., president of the Rhode Island Chapter of the American Institute of Architects, died April 22 at Miriam Hospital in Providence. He was 60 years old. Mr. Morino had designed a number of churches and directed the remodeling of Ochre Court at Salve Regina College at Newport among other works.

MORTIMER FAVROT, 58, senior partner in the New Orleans architectural firm of Favrot, Reed, Mathes and Bergman, died May 3 of a heart attack in Iterlaken, Switzerland, where he was vacationing with his wife and friends. Mr. Favrot was a member of the American Institute of Architects and of the Louisiana Historical Society among many other organizations. He was a graduate of Tulane University and did postgraduate work at the Massachusetts Institute of Technology and at the Fountainebleau (France) School of Fine Arts.

GANO DUNN, 82, president of the J. G. White Engineering Company and an electrical engineer widely honored in his profession, died April 10 in University Hospital in New York. Mr. Dunn joined the White firm in 1911 and in 1913 became its president. As head of the firm he directed numerous construction projects in many parts of the world, including the United States Naval Oil Base at Pearl Harbor, the steam plant at Muscles Shoals, Ala., a long-distance natural-gas pipeline in California, three large irrigation and power dams in Chile and the government aviation station at Langley Field, Va.

J. GORDON TURNBULL, founder and president of J. Gordon Turnbull Inc., consulting engineering firm with headquarters in Cleveland, Ohio, died April 1 at his Los Angeles home after a long illness. His age was 62. Mr. Turnbull, who had been inactive for the last year in the firm he founded in 1941, had been consulting engineer for the design and construction of the River Rouge plant of Ford Motor Company, the Knolls Atomic Laboratory, the Canol Project, and many General Motors plants among other major industrial and military projects throughout the world. In recent years Mr. Turnbull had been devoting himself to projects involving the development of the aircraft, synthetic rubber, atomic energy and aluminum industries. These included the planning and design of the new atomic town of Richland, Wash., and part of the design for the nearby Hanford Atomic Works; a 130-million-dollar aluminum expansion program for the Reynolds Metals Company at Corpus Christi, Tex., Arkadelphia, Ark. and Phoenix, Ariz.

(*More news on page 298*)

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CORRECTION

The RECORD's apologies to Allen J. Strang, A.I.A., and Joseph J. Weiler, A.I.A., for the omission of their names as architects of the University of Wisconsin Y.M.C.A. project in a news story on page 358 of the March issue.

Mr. Architect:

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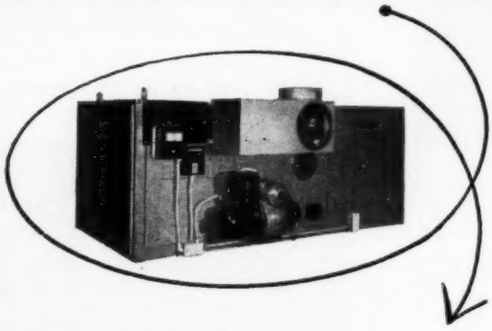

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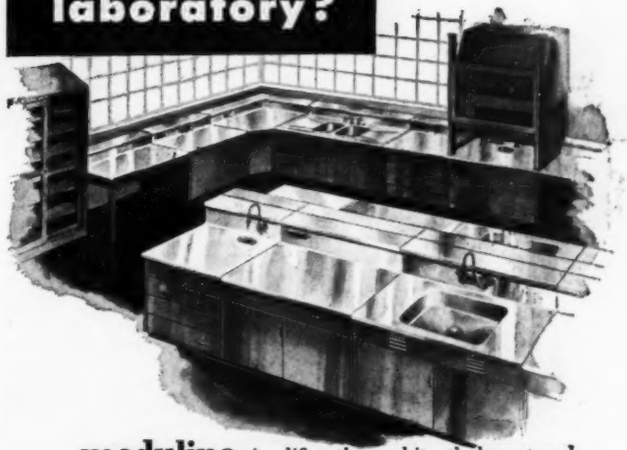

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(*Continued from page 296*)

PERIODICAL REPORT

France in Architecture

An exploration of France's contribution to the evolution of architecture is begun in the February issue of *L'Architecture d'Aujourd'hui*, this number being devoted principally to habitation. By way of introduction to the study, André Bloc, the magazine's director, contributes an essay on "An Era of French Architecture," in which he traces the growth of modern building in the country. Important works by such architects and engineers as Labrouste, Jourdain, Eiffel, Perret, Freyssinet, Le Corbusier, Lurçat, Beaudoin & Lods and others are illustrated and discussed. This article is followed by a tribute to Auguste Perret, written by Pierre Dalloz, and an extensive presentation of Le Corbusier's *Unité d'Habitation* in Marseilles. The latter is illustrated with both color and black-and-white photographs of the structure. The remainder of the issue is devoted to presentations of other post-Liberation buildings for habitation, including large projects and collective housing structures, apartment buildings (among these a large group of buildings in the Paris region), individual houses, and buildings in the colonies.

L'Architecture d'Aujourd'hui

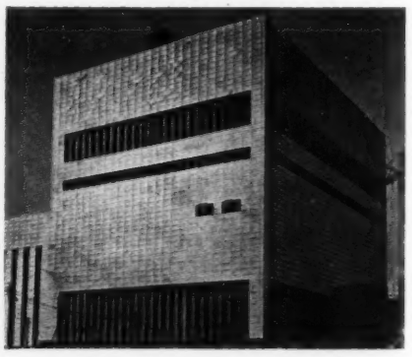
Le Corbusier's famous and controversial Unité d'Habitation in Marseilles

Electricity and Architecture

Techniques & Architecture in its No. 5-6 issue turns its attention to problems of production and distribution of electrical energy, especially as these affect architects and engineers who are called upon to design buildings to house such facilities. The entire issue is devoted to a concise investigation of the subject. The first section deals with sources of energy and equipment, the second with thermal equipment, the third with hydroelectric equipment. In each of these a general introduction is followed by classifications and descriptions of equip-

(*Continued on page 302*)

Techniques & Architecture



French power station, Nantes-Cheviré

UNITED NATIONS
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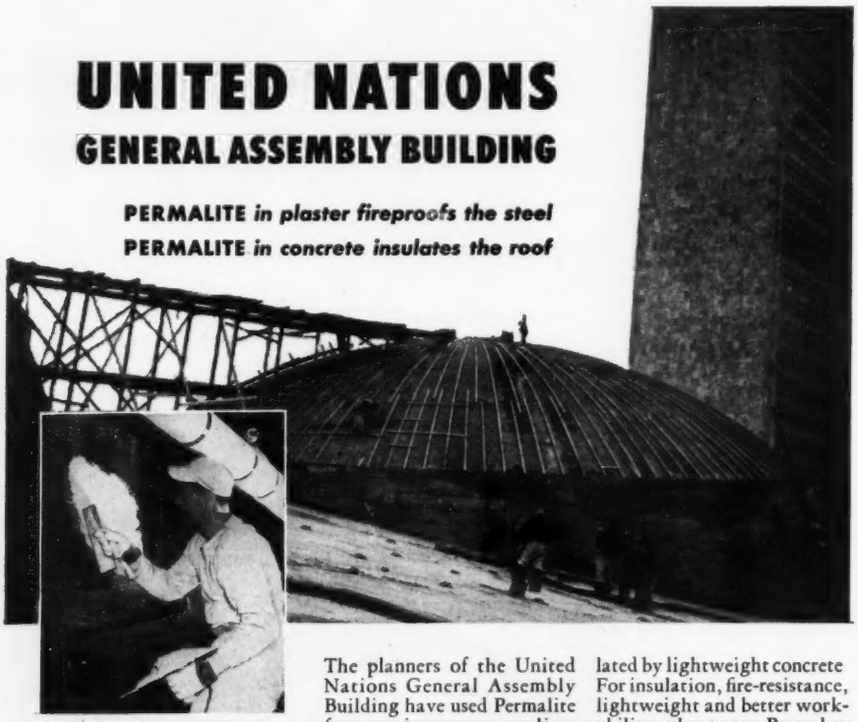

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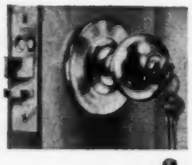

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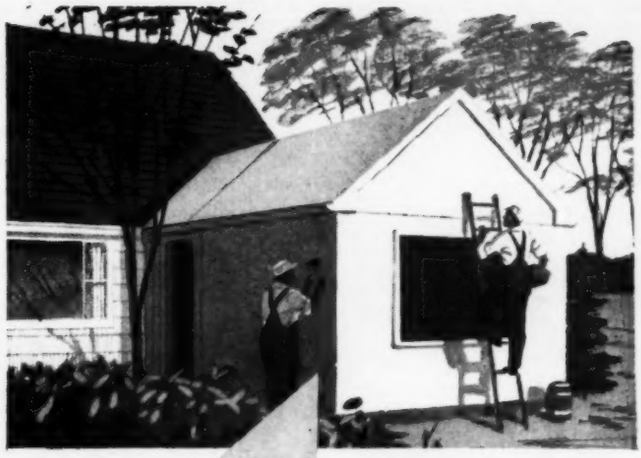

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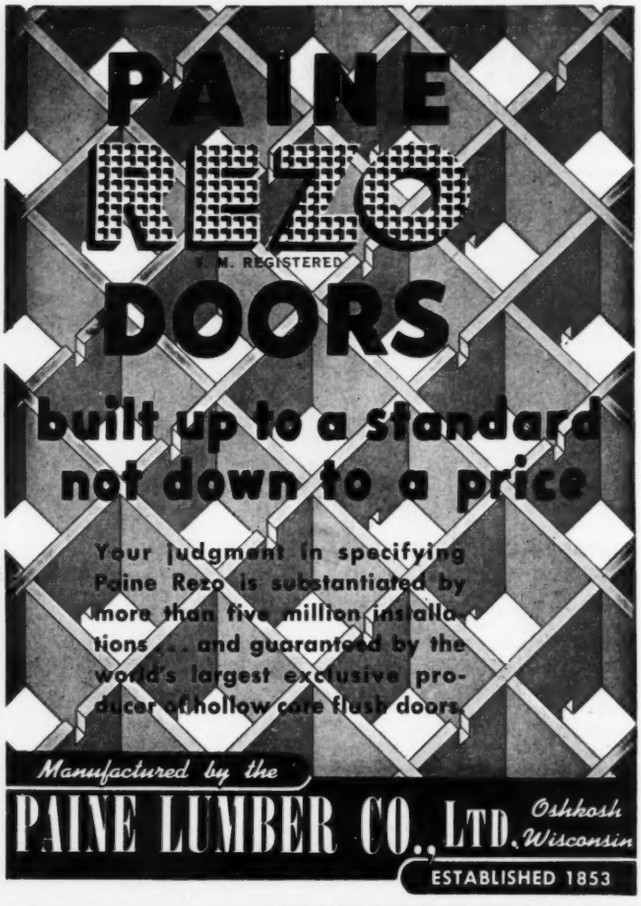
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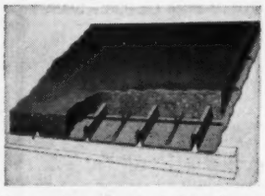

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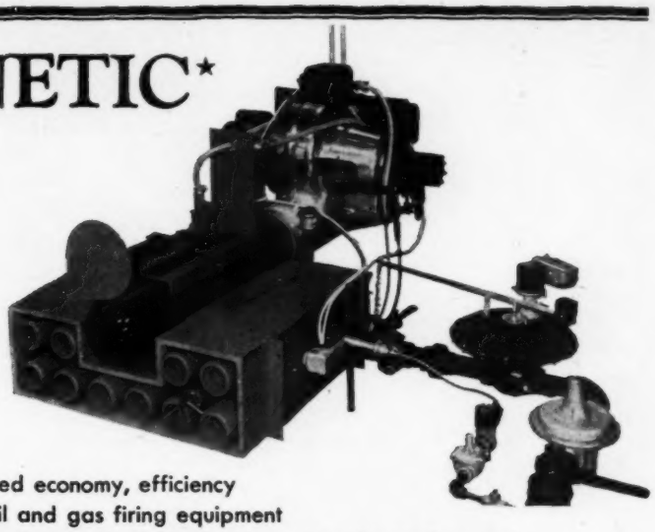

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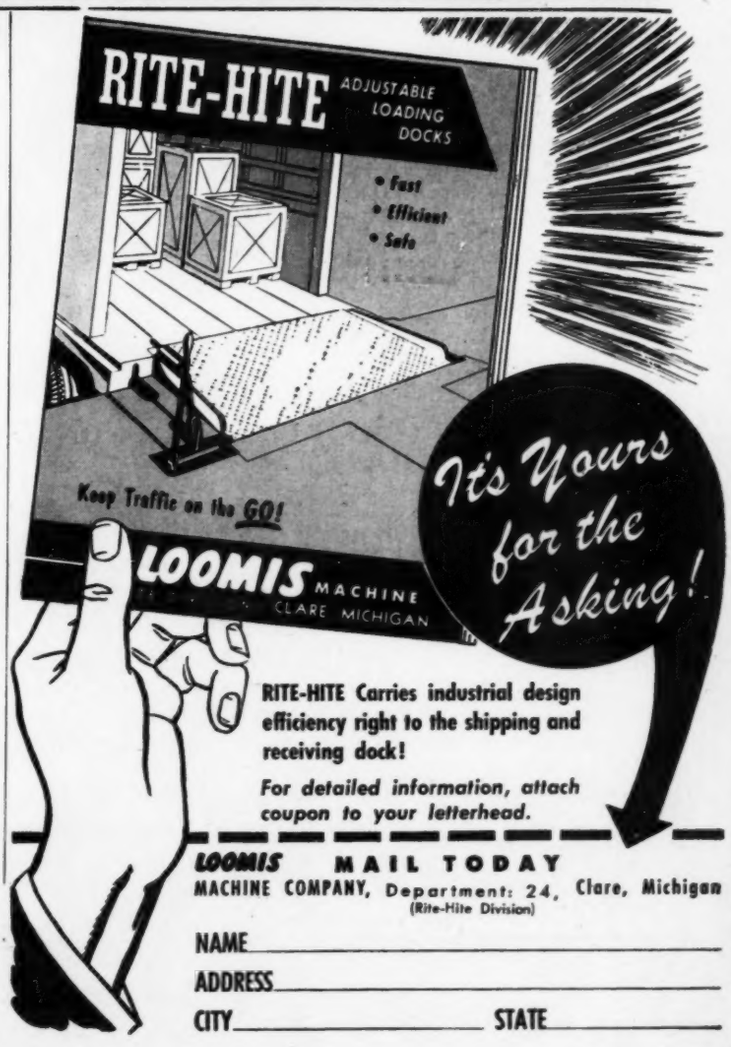

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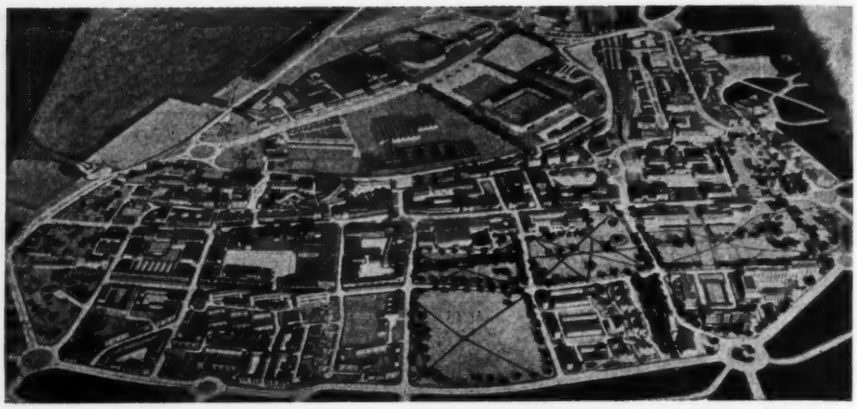
THE RECORD REPORTS

(*Continued from page 298*)

ment and operation. The technical section is concluded with an outline of distribution techniques and facilities. The issue is rounded out with a generous selection of recent French buildings for electrical facilities, including power stations, hydroelectric plants, dams and sub-stations.



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Rebuilding After Blitz

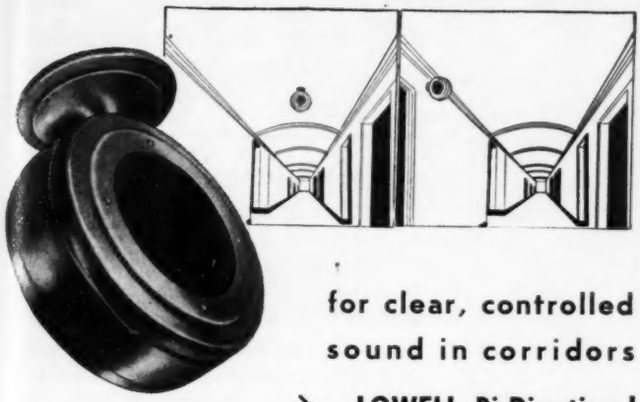
There is a reminder in a recent issue of *The Architects' Journal* of how long is the task of repairing urban areas devastated by air attack. For Britain is still in the process of rebuilding cities and towns blitzed in World War II. *The Architects' Journal* has surveyed a number of these projects, and in the seventh of a series it devotes its entire April 16 issue to an analysis of the reconstruction of the city of Southampton. The survey, written by D. Rigby Childs and D.A.C.A. Boyne, first describes planning proposals for the town and illustrates major post-war buildings designed by architects who are not residents of Southampton. Work executed by the Borough Architect, the Borough Engineer and the Docks Engineer are next examined, and the issue concludes with a report on the post-war work of private architects resident in the city. Brief biographies of these architects are furnished. Planning in Southampton is of particular interest, the *Journal* notes, since the city is literally the "Gateway to England" so far as passenger transportation is concerned.

British View of U. S. Parks

Prompted by the rising British interest in the national parks movement, *Town and Country Planning* publishes in its May issue the first of two articles on "National Parks in the U.S.A." The articles are written by John Foster, a planning officer in the British national parks system.

In this first piece, Mr. Foster discusses the legislative and administra-

(*Continued on page 304*)



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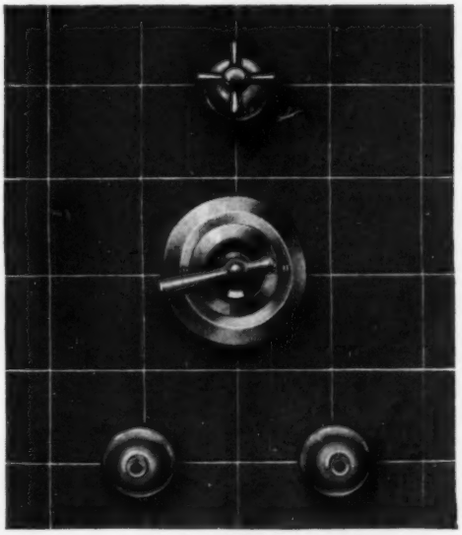

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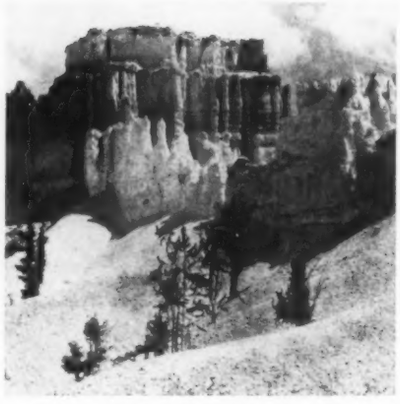
THE RECORD REPORTS

(*Continued from page 302*)

tive history of the American movement, as well as the thinking which has guided efforts to preserve primeval scenery for "the enjoyment of future generations."

Part II of the article, which will appear in a subsequent issue, is to discuss post-war accomplishments of the U. S. National Parks Service.

United States Information Service



Bryce Canyon, National Park, Utah, featured on British magazine's cover

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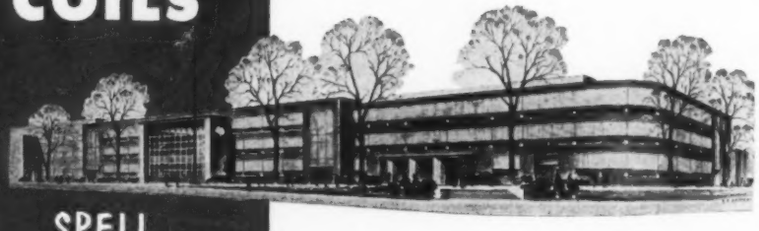

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AMERICANS ABROAD

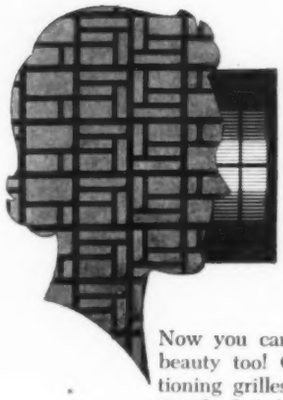
• Three American office buildings are featured in *Informes de la Construcción* No. 49. The technical review is published by the Spanish Instituto Technico de la Construccion Y del Cemento. In this issue, the Alcoa building in Pittsburgh (Harrison & Abramovitz, architects; Mitchell & Ritchey and Altenhof & Bown, collaborating architects), the Esso building in New York (Carson & Lundin, architects), and Lever House (Skidmore, Owings & Merrill, architects) are all accorded feature presentations. The Alcoa building is given seven pages, while the Esso building and Lever House are presented in four and eight pages respectively. The articles are closely based, both in text and illustration, on presentations which originally appeared in ARCHITECTURAL RECORD, *Bauen und Wohnen*, *Die Bauzeitung*, and *Architectural Forum*.

• The Graduate Dormitory at Harvard University, Walter Gropius and the Architects Collaborative, architects, is discussed and illustrated in the April issue of the Japanese magazine *Sinkentiku*.

• The livestock arena in Raleigh, N. C., by the late Matthew Nowicki and William H. Deitrick (Severud-Elstad-Kruger, consulting engineers) is presented in five pages of the Dutch technical journal, *Polytechnisch Tydschrift*.

• *Vitrum*, the Italian Journal devoted to architectural applications of glass and crystal, includes works by four American architects in its No. 32–33 issue. Five pages of the magazine are devoted to the Earl C. Brod residence in Arcadia, Calif., by Richard Neutra. Edward D. Stone's Fine Arts Center for the University of Arkansas receives a feature presentation of seven pages, while a Standard Oil Company research and administration building in Indiana, Holabird & Root & Burgee and Associates, architects, is presented in three pages. An additional single page of the magazine is devoted to a hospital in Northville, Mich., O'Dell, Hewlett and Luckenbach, architects.

(*More news on page 308*)



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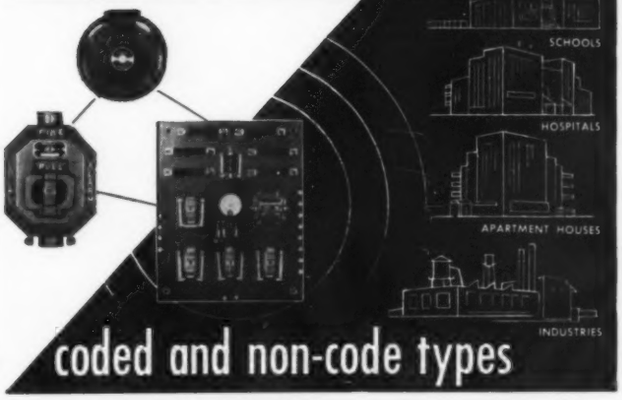

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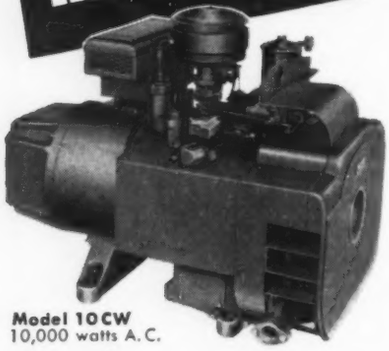

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THE RECORD REPORTS

(*Continued from page 304*)

GREAT LAKES REGION A.I.A. COUNCIL MEETS

The first official meeting since its organization last October of the Great Lakes Regional Council of the American Institute of Architects was held in Toledo in April.

The all-day session was attended by some 45 architects from the Great Lakes District, with all chapters and state organizations in the district represented.

At the morning session, Regional Director John N. Richards, F.A.I.A., gave a general report on the activities of the A.I.A. Board of Directors at its most recent semiannual meeting in March. Chapter activities were also discussed,

At the speakers' table: President Carroll Beeson, Indiana Society of Architects; Raymond Kastendieck, nominee for Great Lakes A.I.A. regional director; Allen Saunders, cartoonist and luncheon speaker; Regional Director John Richards; and Clair W. Ditchy, A.I.A. secretary and presidential candidate

as well as ideas for new activities in the chapters.

The afternoon session was a workshop on public relations, with Mr. Richards outlining the program of Ketchum Inc., Pittsburgh public relations firm in charge of the A.I.A.'s $100,000 public relations program. Mr. Richards described the "minimum" public relations program for A.I.A. chapters: establishment of a recommended list of chapter publications; establishment of better relations with public opinion channels; compilation for direct-mail use of a list of "thought-leaders" of the area; and committee work for community action.

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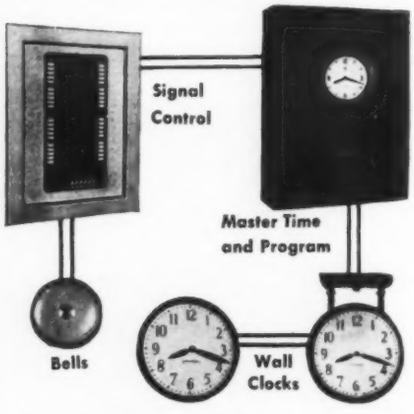

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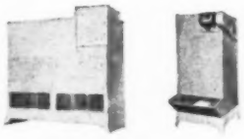

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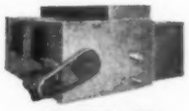

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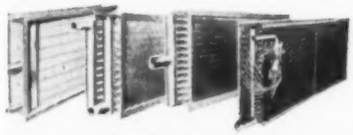

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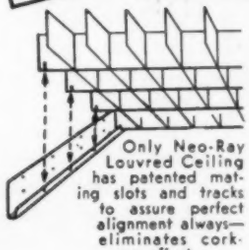

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REQUIRED READING

(*Continued from page 43*)

Eames, and Risom of the 20th. Among the designers discussed are those who in the early part of this century devised better methods of supporting the human frame through experimental use of old materials and the utilization of new technical resources — methods whose influence is still significant in modern furniture design.

After tracing this evolution, the editor investigates basic materials, cultural influences and construction similarities in current approaches to the problem of seating. The major part of the volume examines chairs being produced today, arranged primarily on the basis of materials and processes used in manufacture. Bent wood, laminated wood, molded plastics, solid wood, metal and upholstery are all considered. Some stimulating and extremely personal designs are liberally spotted throughout the listings of the more popular or well known chairs.

The scope of the book is indicated by the fact that 137 designers from many countries are represented. As Nelson himself says, "Within these pages are assembled more contemporary designs for accommodating the posterior than one would believe possible. And the present flood of designs shows no sign of abating." Don Erwin.

PHOTOGRAPHIC SKETCHBOOKS

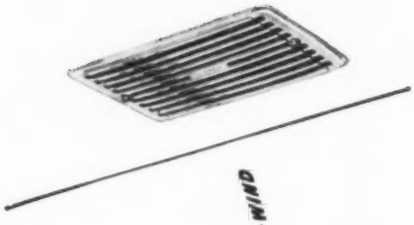
Cape Cod: A Photographic Sketchbook. By Samuel Chamberlain. Hastings House, Publishers, Inc. (41 East 50th St., New York, N. Y.) 1953. 7¼ by 9½ in. 72 pp., illus.

Cape Ann Through the Seasons. A Photographic Sketchbook. By Samuel Chamberlain. Hastings House, Publishers, Inc. (41 East 50th St., New York, N. Y.) 1953. 7¼ by 9½ in. 36 pp., illus.

In these two volumes, the first in his new series of photographic sketchbooks, Samuel Chamberlain, author of "Colonial Williamsburg" and "Old Sturbridge," records the charm of Cape Cod and Cape Ann. With his usual technical skill and interpretative selection of subjects, Chamberlain has interspersed pitched-roof cottages with dusty lanes and lobster buoys, classic churches with quiet ponds and sun-swept wharves.

Setting out to capture the regions' beauty in, as he states, "a progressive portrait" Chamberlain has concerned himself with succeeding seasons as well as progressing miles. Thus "Cape Ann"

(*Continued on page 312*)



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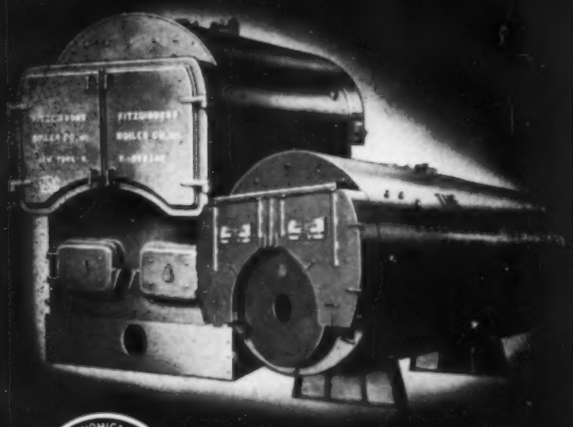

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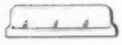

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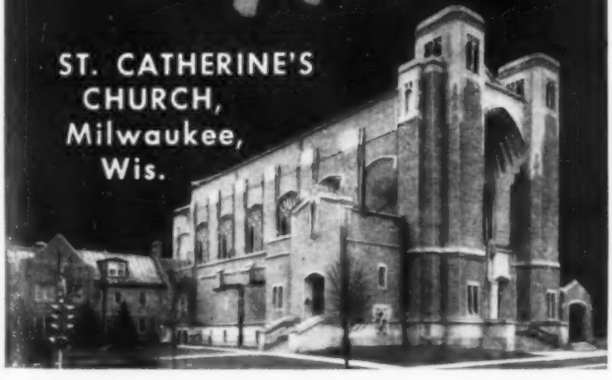

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REQUIRED READING

(*Continued from page 310*)

progresses from early Annisquam spring, through animated floats and summer art classes, to Rockport's old stone quarry in February; while "Cape Cod" begins on a spring morning at Bourne Bridge to follow Cape architecture, fishing piers and sandy shores through spring and summer to an autumn sunset over Provincetown.

Those who know the Capes will find the well-known landmarks. In "Cape Ann" are Rockport's Stately Street, Gloucester's fisher-helmsman, the Eastern Point Light; in "Cape Cod," Falmouth Green, the Wellfleet Meeting House, Craigville Beach, Barnstable's Crocker Tavern. There are also Chamberlain studies of such less pretentious subjects as abandoned boats and drying lobster pots. Notable are photographs of the breakwater disappearing into the fog at Eastern Point and the 17th Century witch house at Pigeon Cove, mysterious and gloomy against the shadowed snow of late afternoon.

"Cape Cod" and "Cape Ann" are recommended summer "reading."

BOOKS RECEIVED

Victor Bourgeois, Architectures 1922–1952. Editions Art et Technique. (89 Rue Belliard, Brussels, Belgium) 1952. 7¾ by 10¼ in. Illus.

Engineering Drawing. By Frank K. Zozzora. McGraw-Hill Book Company, Inc. (330 West 42nd St., New York 36, N. Y.) 1953. 9 by 11¼ in. 369 pp., illus.

Housing in Denmark Since 1930. By Esbjørn Hiort. Translated by Eve M. Wendt. The Architectural Press. (London, England.) Jul. Gjellerups Forlag (Copenhagen, Denmark) 1952. 7 by 10 in. 112, pp., illus.

Jugendbauten Unserer Zeit. By Oskar Splett. Werner Wirsing. Verlag Hermann Rinn. (Munich, Germany) 1953. 8 by 11¼ in. 263 pp., illus.

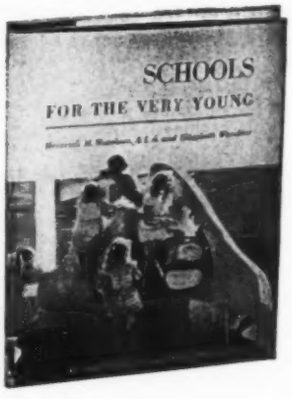
Philadelphia Architecture in the Nineteenth Century. Theodore B. White, Editor. Published for the Philadelphia Art Alliance by the University of Pennsylvania Press. (Philadelphia, Penn.) 1953. 9¼ by 12¼ in. 34 pp. plus 105 plates.

Prestressed Concrete. By Kurt Billig. D. Van Nostrand Company, Inc. (250 Fourth Avenue, New York, N. Y.) 1953. 6 by 9 in. 470 pp., illus.

Surveying Theory and Practice. By Raymond E. Davis and Francis S. Foote. McGraw-Hill Book Company, Inc. (330 West 42nd Street, New York, N. Y.) 6 by 8¼ in. 1021 pp., illus.

Schools for the Very Young

by HEINRICH H. WAECHTER, A.I.A. *and* ELISABETH WAECHTER



THOUGH many volumes have been written about school design, "Schools for the Very Young" is — so far as we know — the first in which an architect and a child educator have collaborated to provide an up-to-date treatise on the requirements of the particular type of school demanded for the proper training of the very young child.

Beginning with a brief yet adequate historical and philosophical background, in which the development of the theory and practice of child education is discussed, the book goes on to describe the pre-school in action, noting the events of the school day and the corresponding environmental needs of the children and their teachers. Examples of existing pre-schools are presented with critical comment. Detailed information is given concerning the space apportionments and arrangements called for by the activities peculiar to such institutions. Since one of the authors is especially concerned with city planning, the relation of the pre-school to its neighborhood and community is analyzed, and the many different types of pre-schools that have developed to meet special conditions are enumerated and explained.

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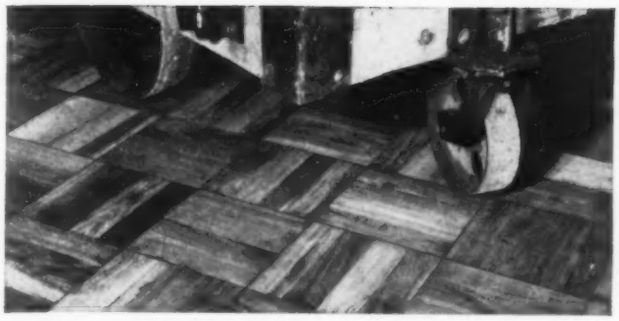

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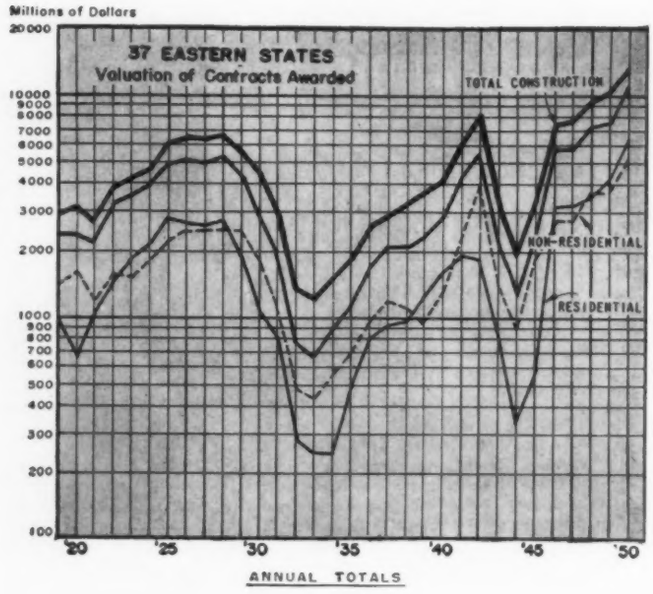
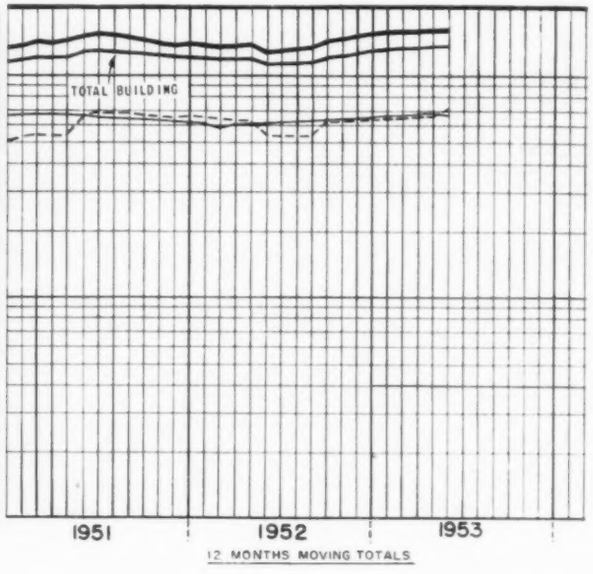




CONSTRUCTION STILL 8% OVER 1952

Construction is still running above the 1952 totals, though most recent figures by the F. W. Dodge Corporation show residential building slipping just a trifle. Value of total construction awards for May declined eight per cent from the April level, but gained three per cent over the May 1952 valuation, putting totals eight per cent above last year.

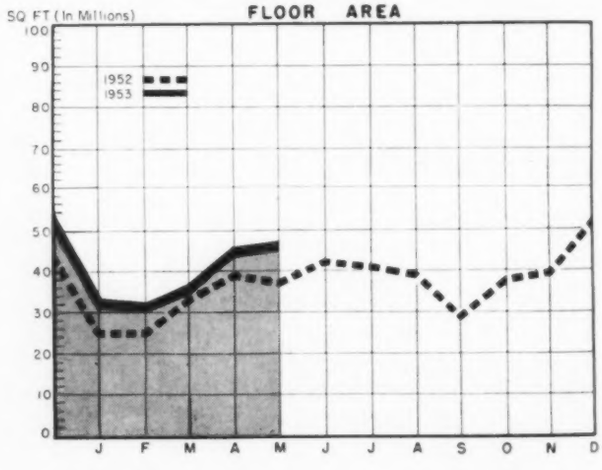
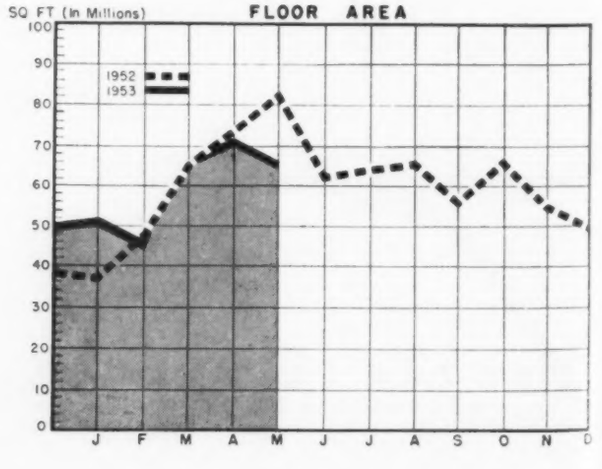
Nonresidential building for the month declined 15 per cent from this year's high in April, but was still 26 per cent above May of 1952.

Residential contracts in May fell off five per cent from the April figure, and 15 per cent from May 1952. Totals for this year showed a slight gain over last year, but in terms of square foot area this year ran one per cent behind last.

CONSTRUCTION CONTRACTS AWARDED
37 EASTERN STATES
In Millions of Dollars
First five months 1953 vs. 1952

Classification	*1953*	*1952*
Commercial	564	344
Manufacturing	663	575
Educational & Science	642	601
Hospital & Institutional	137	188
Public	85	89
Religious	141	118
Social & Recreational	84	50
Misc. Nonresidential	176	183
Total Nonresidential	2493	2147
Large Residential	428	581
1- & 2-Family Houses	2328	2105
Other Shelter	40	76
Total Residential	2795	2762
Total Building	5288	4910

NONRESIDENTIAL BUILDING (37 EASTERN STATES)



RESIDENTIAL BUILDING (37 EASTERN STATES)